1998-2005 DRIVELINE/AXLES

Front Axle - 163 Chassis

TESTING & REPAIR

TESTING AND REPAIR WORK: PASSENGER CARS: FRONT AXLE - AR33.00-Z-9163AA

MODEL 163

Removing and installing front axle	MODELS 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.10-P-0100GH**
Remove/install rubber bushes of front axle transmission mounting	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.10-P-0120GH**
Remove/install front axle half	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.10-P-0200GH**
Remove/install front axle shaft flange and double-row angular ball bearing	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.20-P-0315GH**
Checking follower joint of steering knuckle mount (installed)	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.20-P-0426GH**
Replace supporting joint	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.20-P-0440GH**
Removing and installing upper wishbone	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.20-P-0500GH**
Remove/install lower wishbone	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.20-P-0510GH**
Replace front bearing of lower wishbone	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.20-P-0526GH**
Removing and installing steering knuckle	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.25-P-0400GH**
Remove/install front axle gear	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.30-P-0525GH**
Replace shaft seal on drive pinion	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.30-P-0530GH**
Remove/install radial shaft seal at front axle gear of front axle shaft	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.30-P-0545GH**
Remove/install front axle shafts	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.30-P-0620GH**
Replace rubber boots on front axle shaft	MODEL 163.113 /128 /136 /154 /157 /172 /174 /175	**AR33.30-P-0660GH**

ATTACH ENGINE SUPPORT BRACKET AND RAISE ENGINE - AR33.10-P-0100-01BV

Workshop equipment

WE58.40-Z-1007-11A	Engine lifting fixture

The engine support bracket (1) is positioned with its support surfaces resting on the left and right-side fenders' inside seams (arrows).

During installation it is important to proceed with caution to avoid damage to the vehicle paintwork.

1. Lift engine by the front suspension hook.

Shown on model 163 with engine 112.942

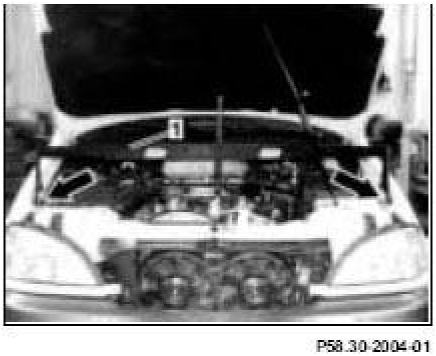


Fig. 1: Identifying Engine Support Bracket - Shown On Model 163 With Engine 112.942

SUPPORTING FRONT AXLE CARRIER WITH INSPECTION PIT OR ASSEMBLY LIFT - AR33.10-P-0100-03GH

Workshop equipment

WE58.40-Z-1019-11A	Removal fixture for axles

1. Support front axle with axle removal device (070) and inspection pit or assembly lift. Ensure that the guide pin (arrow) is inserted in the front axle carrier.

Lower the front axle carefully; ensure that no cables and lines are trapped in between.

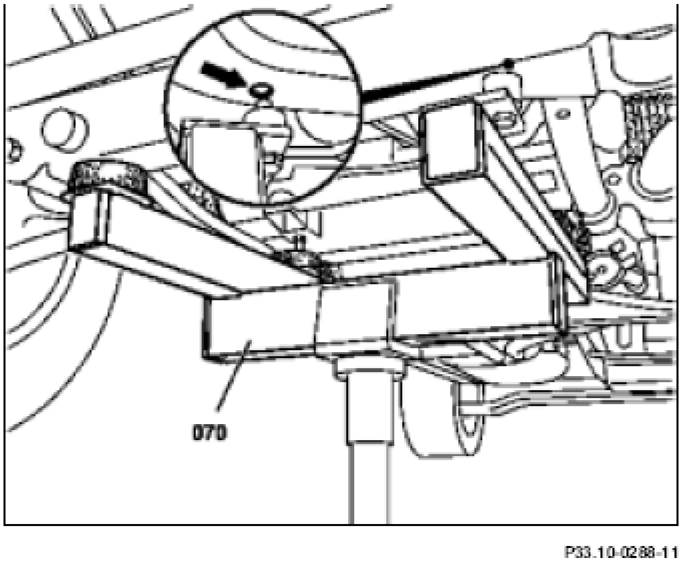
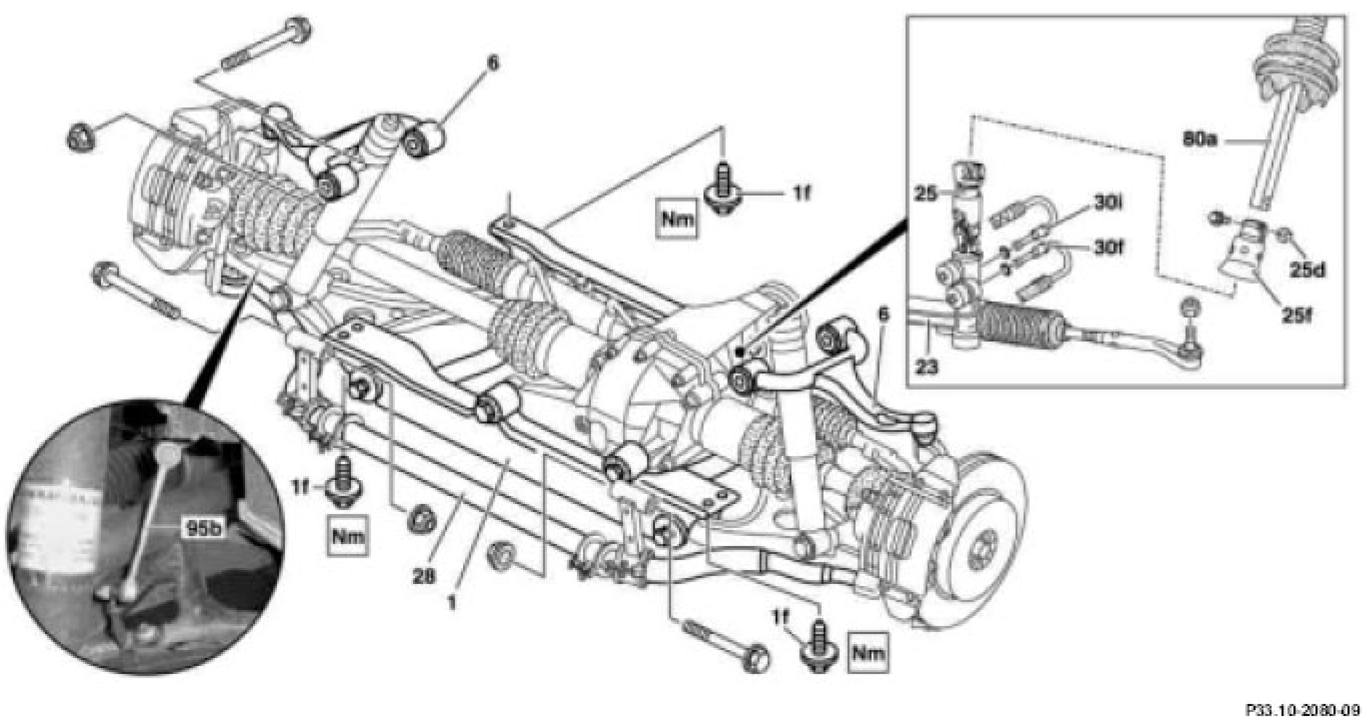


Fig. 2: Identifying Supporting Front Axle And Pin

REMOVING AND INSTALLING FRONT AXLE - AR33.10-P-0100GH

MODELS 163.113 /128 /136 /154 /157 /172 /174 /175

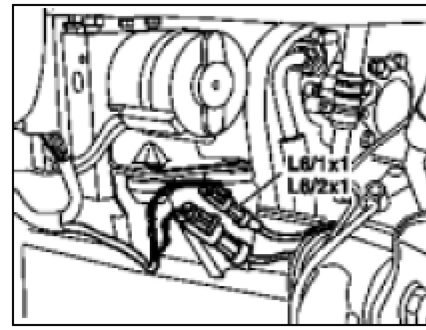


1	Front axle carrier	25	Steering coupling	30i	High pressure expansion hose
1f	Bolts	25d	Nut	30f	Return flow pipe
6	Upper transverse control arm	25f	Steering coupling shield	80a	Lower steering shaft
23	Rack-and-pinion steering	28	Torsion bar	95b	Level controller link rod

Fig. 3: Identifying Front Axle Components

Position in major assemblies compartment (left and right)

L6/1x1 Rpm sensor connector
L6/2x1 Rpm sensor connector



P33.10-0287-01

Fig. 4: Identifying RPM Sensor Connector

Modification notes

7.11.00	Figure modified from 170 Nm to 200 Nm	Value in BA33.10-P-1001-01C changed for Model 163	***BA33.10-P-1001-01C**

Danger! i	**Remove/install**		
	Notes on self-locking nuts and bolts	All models	**AH00.00-N-0001-01A**
1 PE	Remove front wheels Remove/install wheels, rotate if necessary		 **AP40.10-P-4050GH**
2	Remove shock absorber		**AR32.25-P-0105GH**
3	Unplug speed sensor connector (L6/1x1, L6/2x1)		
Nm 4	**Risk of poisoning** caused by swallowing brake fluid. **Risk of injury** caused by brake fluid coming into contact with skin and eyes. Unscrew brake pipe from brake hose	Pour brake fluid only into suitable and appropriately marked containers. Wear protective clothing and eye protection when handling brake fluid. Seal off line connections with plugs to prevent brake fluid from running out. **Installation:** The brake hose must not be twisted after tightening.	**AS42.50-Z-0001-01A**
	Brake fluid notes	All models	**AH42.50-P-0001-01A**
	Notes on installation of	Model Series 163	**AH42.10-P-9406-01GH**

	brake hoses	AH Ring wrench socket	***BA42.10-P-1001-04A** **Fig. 5**
5	Unbolt propeller shaft at flange on front axle transmission	AH	***BA41.20-P-1001-01A**
6	Remove left and right front springs		**AR32.20-P-0200GH**
7.1	Remove lower engine compartment paneling	Model 163.157 /172 /174 /175 Model 163.113/ 128	**AR61.20-P-1105GH** AR94.30-P-5400GH
8	Detach torsion bar (28) at vehicle frame	AH	***BA32.20-P-1001-02G**
9	Detach upper transverse control arm (6) from vehicle frame	**Installation:** Tighten new nuts slightly. Tighten bolt fully only when vehicle is on its wheels and ready to drive. AH	***BA33.20-P-1006-01D**
10	Detach bracket for oil lines from transmission to oil cooler on front axle carrier		
11	Unclip brake line at rear of front-axle crossmember		
12.1	Remove vehicle level controller connecting rod (95b) at lower transverse control arm on right	Vehicles with xenon headlamps.	
13	Extract fluid from power steering pump reservoir	Hand pump	**Fig. 6**
14	Turn steering wheel to center position (front wheels in straight-ahead position) and secure	The steering wheel must not be turned when the steering coupling has been removed. This will damage the fanfare horns and airbag clock spring contact beyond repair. Remove ignition key and turn steering wheel so that it locks.	
15.1	Detach plug-in connector for speed-sensitive power steering to timing case	Vehicles with speed-sensitive power steering only.	

16	Unscrew nut (25d) and bolt from steering coupling (25) and pull lower steering shaft (80a) up out of steering coupling (25)	Do not use force as the corrugated tube is sensitive to lateral forces. Enlarge clamping groove a little with a screwdriver if necessary. **Installation:** ? Turn rack-and-pinion steering (23) to center position, install steering coupling (25). Replace self-locking nuts (25d). AH	**AR46.20-P-0600-01GH** ***BA46.10-P-1001-01D**
17	Unscrew return line (30f) and high-pressure expansion hose (30i)	Connecting fitting or banjo bolts depending on the version. Seal off line connections with plugs. **Installation:** Replace sealing rings. Return line connection fitting: ? AH High pressure expansion hose connection fitting: ? AH Return line banjo bolt: ? AH High pressure expansion hose connection fitting: ? AH	***BA46.20-P-1001-01D** ***BA46.20-P-1002-01D** ***BA46.20-P-1004-01D** ***BA46.20-P-1005-01D**
18	Detach bleeding and venting hose from differential		
19	Prop front axle carrier (1) with pit or installation lift	Use assembly adapter. USA	**AR33.10-P-0100-03GH** ***WE58.40-Z-1019-11A**
20	Unscrew bolts (1f) from front axle carrier (1)	The bolts (1f)are self-tapping, so the following points must be observed: • Never re-tap thread in side member. • Replace bolts.	

		• Use original bolts only. • Do not position bolts at an angle when screwing in. • Do not use an impact wrench. • Observe the tightening torque. AH	***BA33.10-P-1001-01C**
21	Lower front axle carrier (1), pushing all hoses to one side	**Installation:** Contact surfaces of front axle carrier to longitudinal member must be cleaned and flat. Insert the locating pins of the front axle carrier into the holes in the side member.	
22	Check front axle carrier (1) for damage		
23	Install in the reverse order		
24	Fill power steering pump and bleed	Engine 112, 113 Engine 111, 612	**AR46.30-P-0010B** AR46.30-P-0010P
25	Bleed brake system		**AR42.10-P-0010GH**
26	Perform chassis alignment		**AR40.20-P-0200GH**

AH Front axle carrier

Number	Designation		Model Series 163
BA33.10-P-1001-01C	Bolt of front axle carrier to frame	Nm	200

AH Wheel control, hub

Number	Designation		Model Series 163
BA33.20-P-1006-01D	Bolt, upper transverse control arm to frame	Nm	120

AH Front axle torsion strut

Number	Designation		Model Series 163
BA32.20-P-1001-02G	Bolt, retaining bracket to frame	Nm	100

AH Propeller shaft of front axle gear

Number	Designation	Model Series 163

BA41.20-P-1001-01A	Self-locking bolt of propeller shaft to front-axle gear flange Nm	40

AH Brake lines, brake hoses

Number	Designation	Model 163.128/172/174/175	Type 163.136	Model 163.154/157 Nm
BA42.10-P-1001-04A	Brake pipe to brake hose Nm	18	18	18

AH Brake lines, brake hoses

Number	Designation	Model 163.113 as of VIN A289565, X754620 163.154 as of VIN A289565 except Nm	Model 163.113 to VIN A289564, X754619 163.154 to VIN A289564
BA42.10-P-1001-04A	Brake pipe to brake hose Nm	18	18

AH Steering shaft

Number	Designation	Model Series 163
BA46.10-P-1001-01D	Self-locking nut of steering coupling to steering shaft and rack-and-pinion steering Nm	28

AH Steering gear

Number	Designation	Model 163 up to VIN A289559, X754619	Model 163 as of VIN A289560, X754620
BA46.20-P-1001-01D	Screw joint, return line connection fitting to rack-and-pinion steering Nm	15	15
BA46.20-P-1002-01D	Screw joint, high-pressure expansion hose connection fitting to rack-and-pinion steering Nm	15	15
BA46.20-P-1004-01D	Hollow-core screw from return line to rack-and-pinion steering Nm	30	30
BA46.20-P-1005-01D	Banjo bolt of high-pressure stretch hose to rack-and-pinion steering Nm	30	30

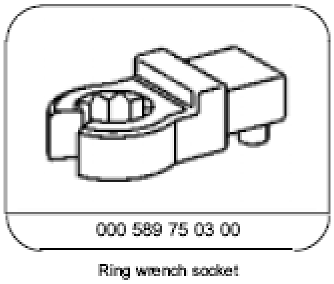


Fig. 5: Identifying Ring Wrench Socket (000 589 75 03 00)

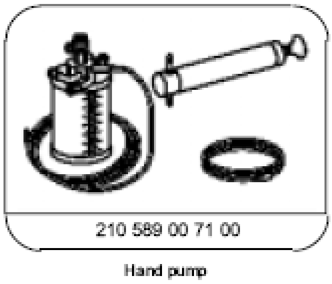


Fig. 6: Identifying Hand Pump (210 589 00 71 00)

Workshop equipment

WE58.40-Z-1019-11A	Removal fixture for axles

REMOVING/INSTALL RUBBER MOUNTS - AR33.10-P-0120-01GH

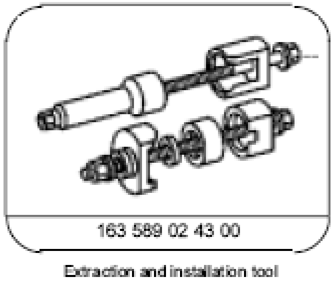
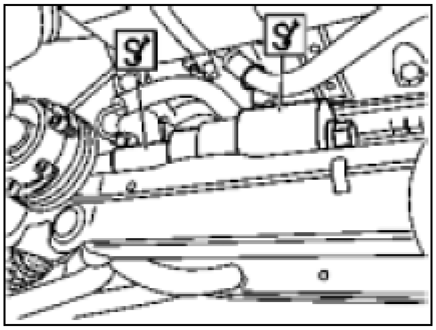


Fig. 7: Identifying Extraction And Installation Tool (163 589 02 43 00)

Remove rubber mounts

1. Use insertion and extraction tool ◁ (Parts 04, 05) to pull the front and rear rubber bushings from the front subframe.

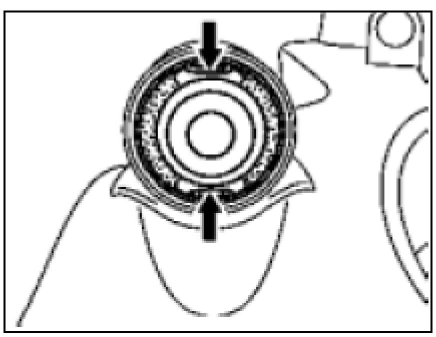


P33.10-0284-01

Fig. 8: Identifying Extraction Tool

Install rubber mount

Observe installed position of rubber mounts. The recesses (arrows) must be horizontal relative to the front-axle carrier.



P33.10-0285-01

Fig. 9: Identifying Position Of Rubber Mounts And Recesses

2. Coat rubber mounts with liquid lubricant.
3. Use the insertion and extraction tool AP (Parts 01, 02, 03) to pull the front and rear rubber bushings into the front subframe, continuing until they are flush with the surface.

Rear bushing shown

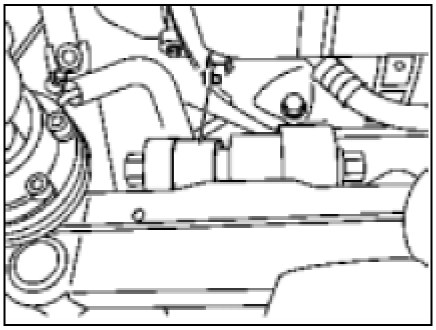


Fig. 10: Identifying Extraction Tool

REMOVE/INSTALL RUBBER BUSHES OF FRONT AXLE TRANSMISSION MOUNTING - AR33.10-P-0120GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

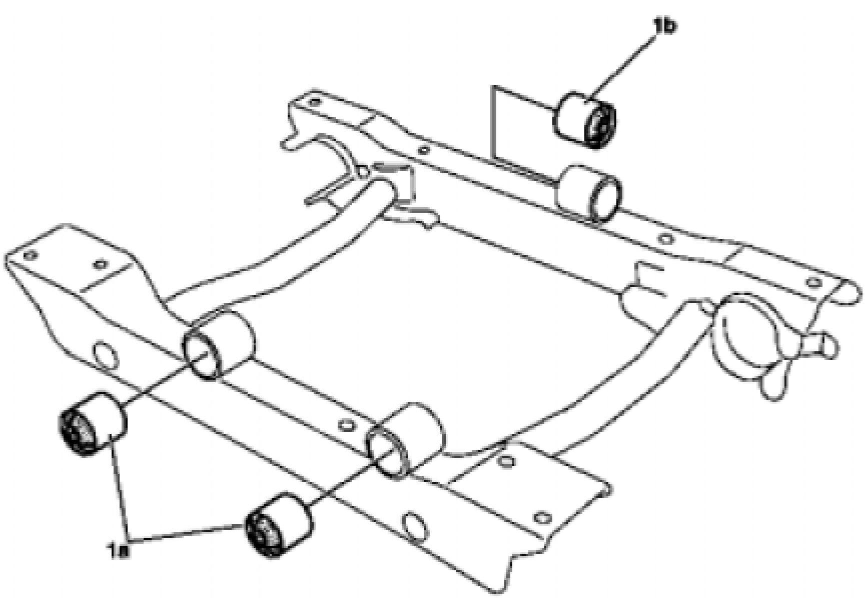


Fig. 11: Identifying Rubber Bushes Of Front Axle Transmission Mounting Components

⚠ Danger! i	**Remove/Install**		
	Notes on self-locking nuts and bolts	All models	**AH00.00-N-0001-01A**
1	Remove front axle gear		**AR33.30-P-0525GH**
	Remove rubber mounts (1a, 1b) of front	Detach holders for	**AR33.10-P-0120-**

2	axle gear mounting	transmission oil pipes. Extraction and insertion tool	**01GH** **Fig. 7**
3	Install in the reverse order		

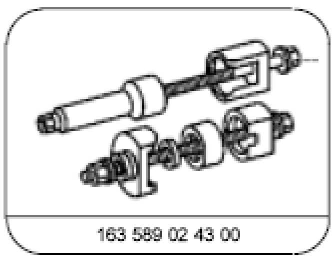


Fig. 12: Identifying Extraction And Installation Tool (163 589 02 43 00)

REMOVE/INSTALL FRONT AXLE HALF - AR33.10-P-0200GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

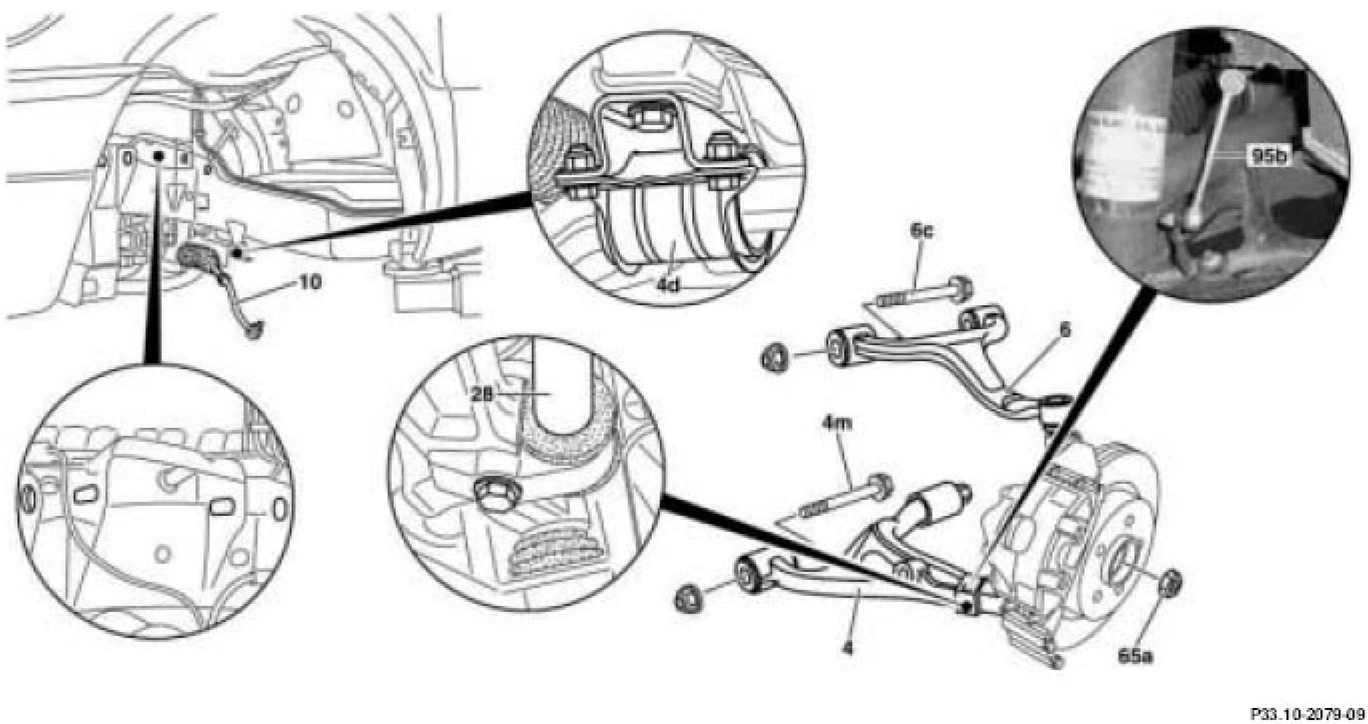
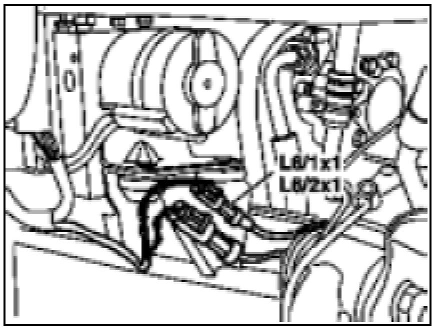


Fig. 13: Identifying Front Axle Half Components

Location in major assembly compartment on left or right

L6/1x1 Rpm sensor connector
L6/2x1 Rpm sensor connector



P33.10-0287-01

Fig. 14: Identifying RPM Sensor Connector

Danger! i	**Remove/Install**		
	Notes on self-locking nuts and bolts	All models	**AH00.00-N-0001-01A**
1 PE	Remove front wheels Remove/install wheels, rotate if necessary		**AP40.10-P-4050GH**
2	Detach hexagon collared nut (65a) from front axle shaft	**Installation:** Install new hexagon nut with collar (65a). AH	***BA33.30-P-1001-02B**
3	Remove left or right front springs		**AR32.20-P-0200GH**
4	Remove fender liner.		**AR88.10-P-1300GH**
5	Remove shock absorber		**AR32.25-P-0105GH**
6	Unplug rpm sensor connector (L6/1x1, L6/2x1)		
Nm 7	**Risk of poisoning** from swallowing brake fluid. **Risk of injury** from skin and eye contact with brake fluid. Unscrew brake line from brake hose Notes on brake fluid Notes on installing brake hoses	Pour brake fluid only into suitable and appropriately marked containers. Wear protective clothing and eye protection when handling brake fluid. Plug line connections with plugs to prevent brake fluid running out. **Installation:** The brake hose must not be twisted after tightening. All models Model 163 AH	**AS42.50-Z-0001-01A** **AH42.50-P-0001-01A** **AH42.10-P-9406-01GH** ***BA42.10-P-1001-04A**

		Box wrench bit	**Fig. 5**
8	Detach track rod (10) from steering knuckle	Check rubber boot and ball joint for wear and damage. AH Thrust piece Puller	**AR46.40-P-0200-02C** ***BA46.40-P-1001-01C** **Fig. 16** **Fig. 17**
9.1	Detach link rod of level controller (95b) from lower transverse control arm on right-hand side	Vehicles with xenon headlamps.	
10	Detach upper transverse control arm (6) from vehicle frame	**Installation:** Tighten new nuts slightly until they touch. Only tighten the bolt when the vehicle is on its wheels in ready-to-drive condition. AH	***BA33.20-P-1006-01D**
11	Press front axle shaft out of front axle shaft flange	Removal and installation tool	**AR33.30-P-0620-04GH** **Fig. 18**
12	Support front axle half at lower transverse control arm with inspection pit or assembly lift		
13	Detach torsion bar (28) from lower transverse control arm	AH	***BA32.20-P-1002-02G**
14	Detach lower transverse control arm (4) from front axle carrier	i004 **Installation:** Tighten new nuts slightly until they touch. Only tighten the bolt when the vehicle is on its wheels in ready-to-drive condition. AH	***BA33.20-P-1004-01D**
15	Loosen clamped joint at rear of lower transverse control arm (4) and fold down bearing shell (4d)	**Installation:** Tighten new nuts slightly until they touch. Only tighten the bolt when the vehicle is on its wheels in ready-to-drive condition.	

		AH	***BA33.20-P-1005-01D**
16	Install in the reverse order		
17	Bleed brake system		**AR42.10-P-0010GH**
18	Carry out chassis alignment check.		**AR40.20-P-0200GH**

AH Front axle torsion bar

Number	Designation		Model 163
BA32.20-P-1002-02G	Bolt, torsion bar to transverse control arm	Nm	68

AH Wheel location, hub

Number	Designation		Model 163
BA33.20-P-1004-01D	Bolt, lower transverse control arm at front to front axle carrier	Nm	135
BA33.20-P-1005-01D	Bolt, lower transverse control arm at rear to front axle carrier	Nm	30
BA33.20-P-1006-01D	Bolt, upper transverse control arm to frame	Nm	120

AH Front axle shaft

Number	Designation		Model 163
BA33.30-P-1001-02B	Nut, front axle shaft to front axle shaft flange	Nm	490

AH Brake lines, brake hoses

Number	Designation		Model 163.113 as of VIN A289565, X754620 163.154 as of VIN A289565	Model 163.113 to VIN A289564, X754619 163.154 to VIN A289564
BA42.10-P-1001-04A	Brake line to brake hose	Nm	18	18

AH Brake lines, brake hoses

Number	Designation		Model 163.128 /172 /174 /175	Model 163.136	Model 163.154 /157 Nm
BA42.10-P-1001-04A	Brake line to brake hose	Nm	18	18	18

AH Track rod

Number	Designation		Model 163
BA46.40-P-1001-01C	Self-locking nut, track rod to steering knuckle	Nm	55

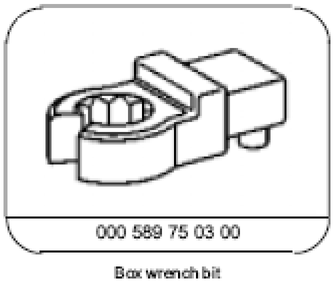


Fig. 15: Identifying Box Wrench Bit (000 589 75 03 00)

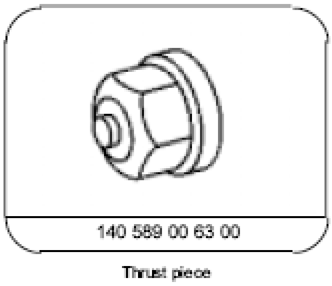


Fig. 16: Identifying Thrust Piece (140 589 00 63 00)

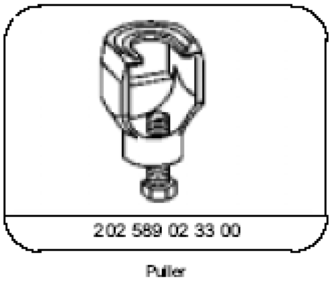


Fig. 17: Identifying Puller (202 589 02 33 00)

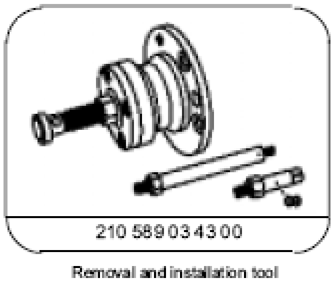


Fig. 18: Identifying Removal And Installation Tool (210 589 03 43 00)

PRESSING OUT AND PULLING IN FRONT AXLE SHAFT FLANGE - AR33.20-P-0315-01GI

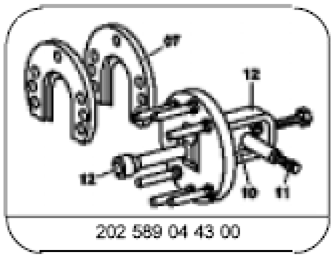


Fig. 19: Identifying Extraction Tool (202 589 04 43 00)

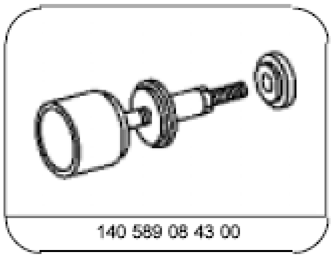


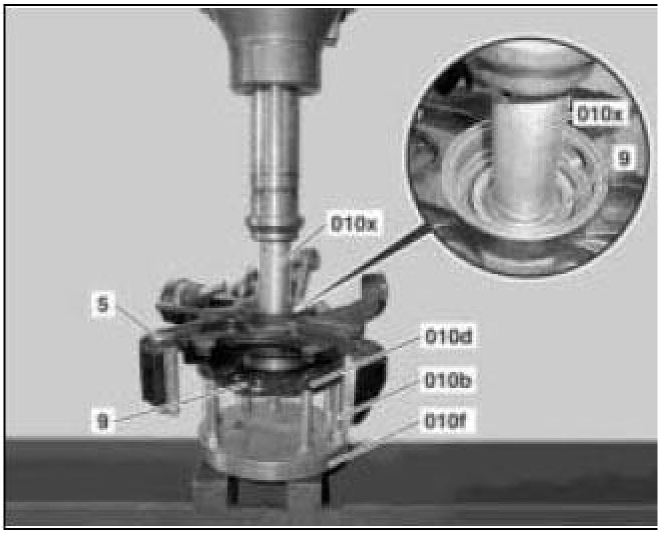
Fig. 20: Identifying Extraction And Installation Tool (140 589 08 43 00)

Pulling out front axle shaft flange

1. Press out front shaft flange (9) with extractor components and a suitable punch (010x) along with a stationary hydraulic press.

   The diameter of the punch (010x) should be approximately 2 mm less than the diameter of the front shaft flange (refer to section).

5	Wheel carrier
010b	Punch Part 05
010d	Support plate Part 07
010f	Thrust washer Part 02



P33.20-2039

Fig. 21: Pressing Out Front Axle Shaft Flange

Pulling in front axle shaft flange

2. Use installation tool to pull front shaft flange (9) into dual tapered ball bearing (9n).

Ensure that the thrust washer (small, Part 03) (08c) is securely seated against the bearing's inside race during the insertion process (arrow).

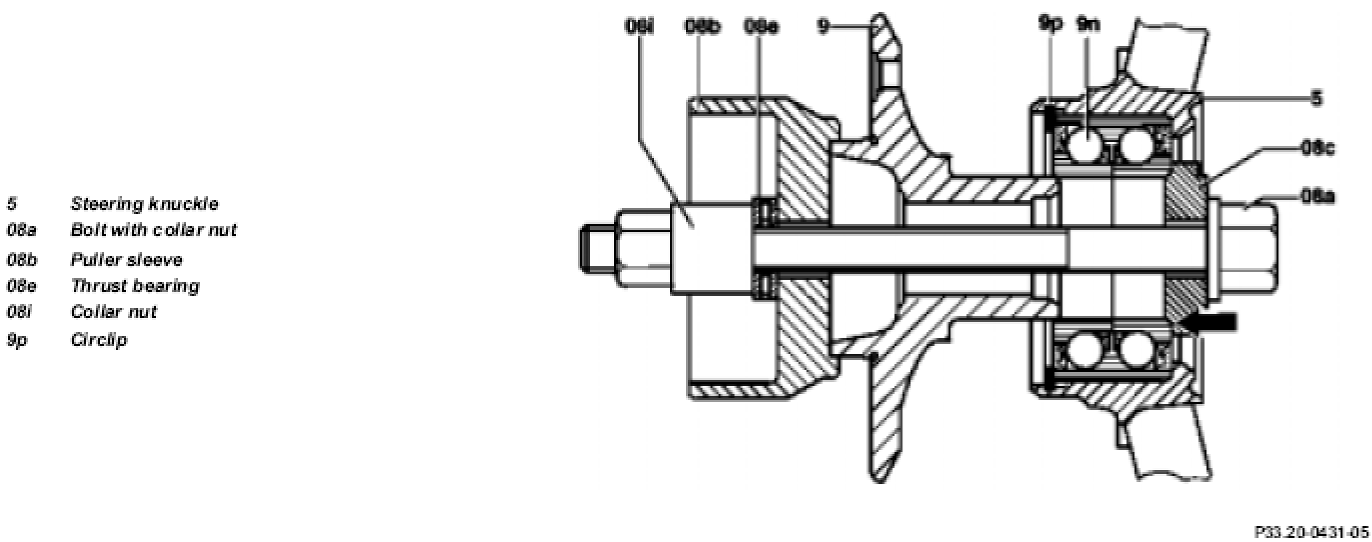


Fig. 22: Cross Sectional View Of Front Axle Shaft Flange & Puller

PULLING DOUBLE-ROW ANGULAR BALL BEARING OUT AND IN - AR33.20-P-0315-03GH



Fig. 23: Identifying Extraction And Installation Tool (140 589 08 43 00)

Pulling out angular ball bearing

1. Use extraction and installation tool to pull the dual tapered ball bearing (9n) from the wheel carrier, remove the bearing.

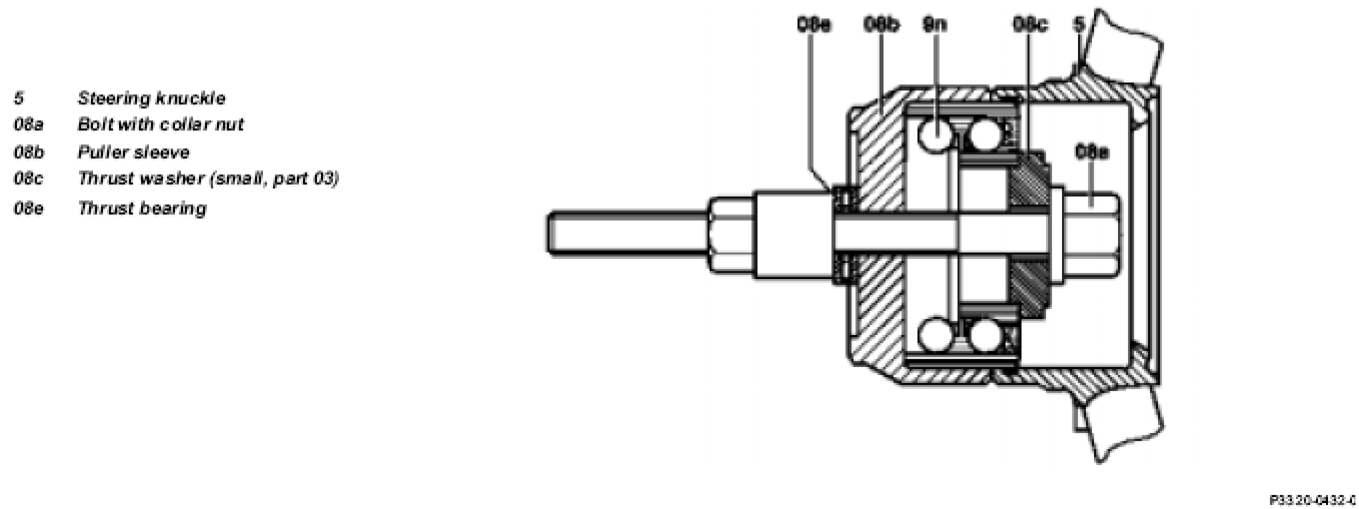


Fig. 24: Cross Section View Of Pulling Out Dual Tapered Ball Bearing

Pulling in angular ball bearing

2. Use extraction and installation tool to pull the dual tapered ball bearing into the wheel carrier, continuing until it is firmly seated (arrow).

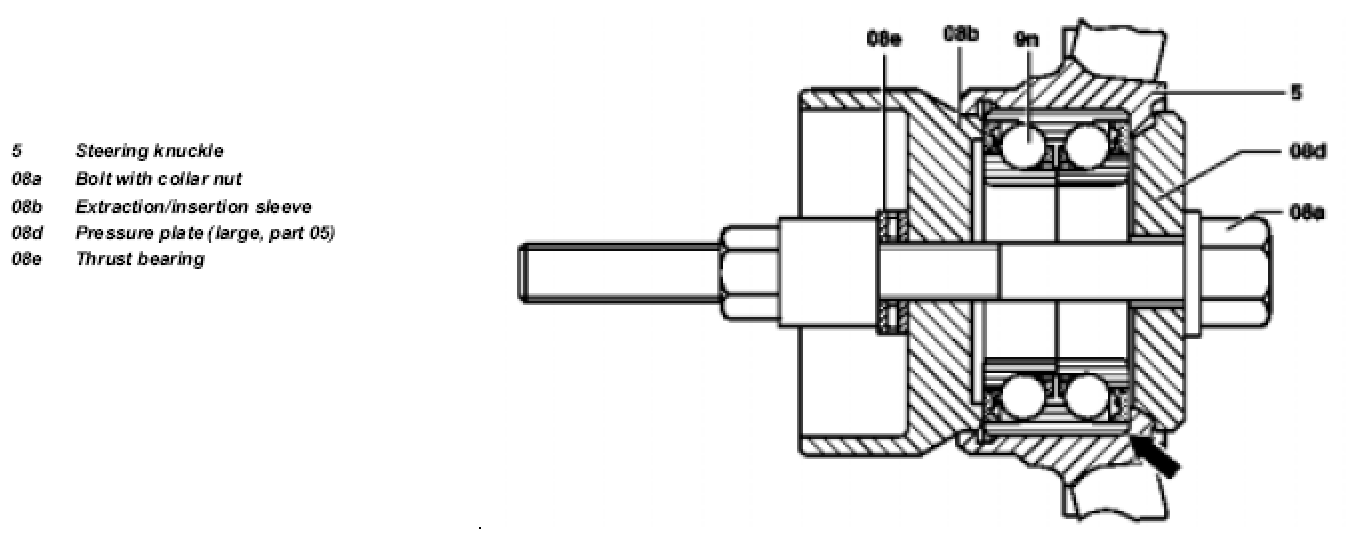


Fig. 25: Cross Section View Of Dual Tapered Ball Bearing & Sleeve

PULLING INNER BEARING RACE OFF FRONT AXLE SHAFT FLANGE - AR33.20-P-0315-04GH

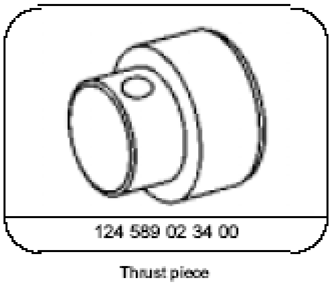


Fig. 26: Identifying Thrust Piece (124 589 02 34 00)

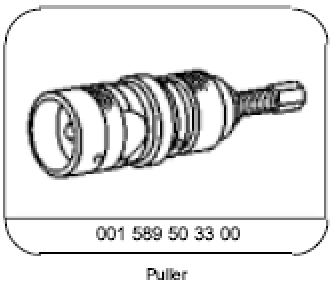


Fig. 27: Identifying Puller (001 589 50 33 00)



Fig. 28: Identifying Clamping Pliers (140 589 01 34 00)

1. Screw clamping pliers to puller and tighten.
2. Clamp front axle shaft flange in vise with aluminum jaws.
3. Place thrust piece (010e) with large diameter on front axle shaft flange.

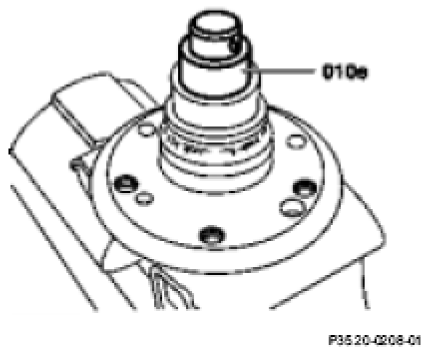


Fig. 29: Identifying Thrust Piece & Axle Shaft Flange

4. Insert complete puller over inner bearing race. Clamp tensioning pliers around upper grooves using conical sleeve of puller.
5. Pull off and remove bearing inner race from front axle shaft flange using puller.

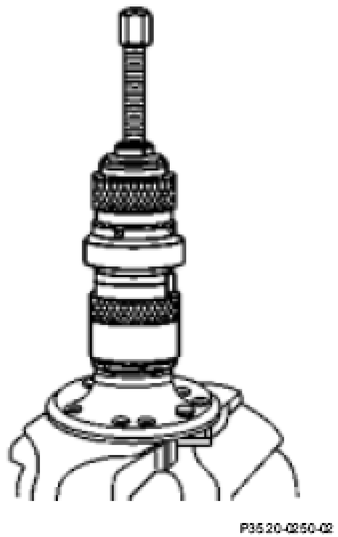


Fig. 30: Identifying Front Axle Shaft Flange

REMOVE/INSTALL FRONT AXLE SHAFT FLANGE AND DOUBLE-ROW ANGULAR BALL BEARING - AR33.20-P-0315GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

Shown on vehicle with floating caliper

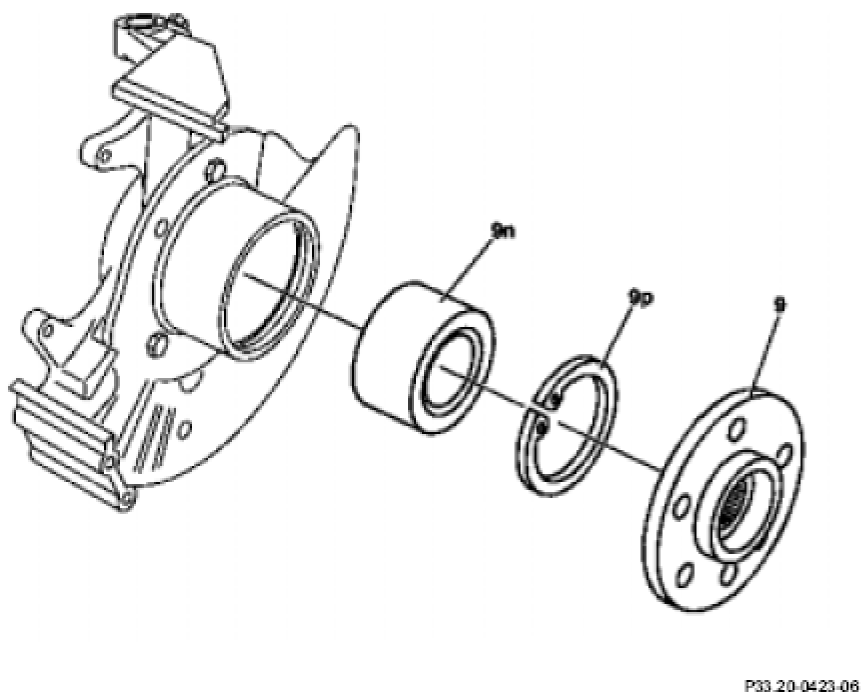


Fig. 31: Identifying Front Axle Shaft Flange And Double-Row Angular Ball Bearing Components

Modification notes

7.8.00	Pulling out front axle shaft flange, changed	Step 2: The front axle shaft flange is now pulled out using a stationary press and not with the auxiliary hydraulic press.	**AR33.20-P-0315-01GI**

Danger! i	**Remove/Install**		
1	Remove steering knuckle		**AR33.25-P-0400GH**
2	Pull out front axle shaft flange (9)	Extractor tool Extraction and insertion tool	**AR33.20-P-0315-01GI** **Fig. 19** **Fig. 20**
3	Detach circlip (9p)	**Installation:** Ensure that the circlip seats securely in the wheel carrier. USA Pliers for locking ring	***WH58.30-Z-1009-02A**
4	Pull double-row angular ball bearing (9n) out of steering knuckle	Extraction and insertion tool	**AR33.20-P-0315-03GH** **Fig. 20**
			AR33.20-P-0315-04GH

5	Pulling inner bearing race off front axle shaft flange	Thrust piece Puller Tensioning clamp	**Fig. 26** **Fig. 27** **Fig. 28**
	Inspect		
6	Check lateral and radial runout of front axle shaft flange (9)	Following predefined repair plan. Permissible lateral runout Permitted vertical runout If readings are lower than specification, it may be necessary to: ? Replace front axle shaft flange.	***BE33.20-P-1001-01B** ***BE33.20-P-1002-01B**
7	Install in the reverse order		

Test values for wheel location, wheel hub

Number	Designation		Model Series 163
BE33.20-P-1001-01B	Permissible lateral runout of front axle shaft flange when removed	mm	0.03
BE33.20-P-1002-01B	Permissible radial runout of front axle shaft flange at center centering when removed	mm	0.03

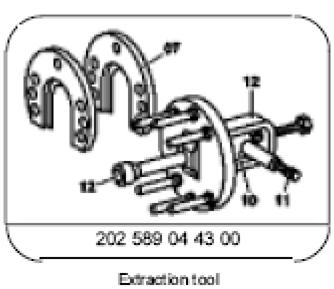


Fig. 32: Identifying Extraction Tool (202 589 04 43 00)

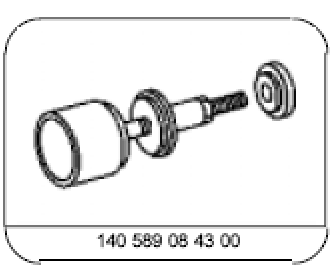


Fig. 33: Identifying Extraction And Installation Tool (140 589 08 43 00)

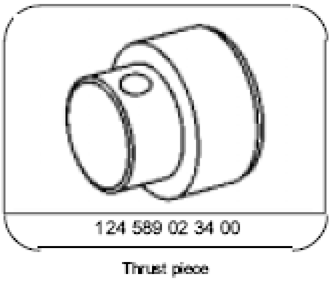


Fig. 34: Identifying Thrust Piece (124 589 02 34 00)

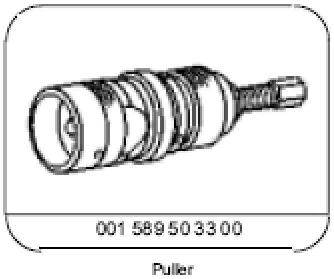


Fig. 35: Identifying Puller (001 589 50 33 00)

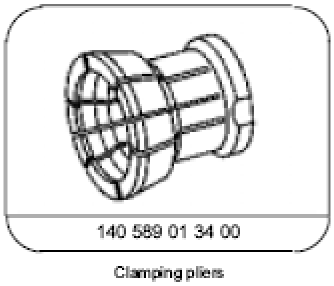


Fig. 36: Identifying Clamping Pliers (140 589 01 34 00)

Commercially available tools

Number	Designation
WH58.30-Z-1009-02A	Pliers for circlip, inner

CHECKING FOLLOWER JOINT OF STEERING KNUCKLE MOUNT (INSTALLED) - AR33.20-P-0426GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175



Fig. 37: Identifying Follower Joint Of Steering Knuckle Mount

	Inspect		
1	Raise front of vehicle		
2	Check rubber boot (8f) for cracks and damage		
3	Check play in follower joint (8) by firmly pulling and pushing on the front wheel while feeling the ball joint at the same time.	If inspection indicates that upper control (6) arm should be replaced, proceed as follows: ? Upper control arm, removal and installation	**AR33.20-P-0500GH**

PRESSING OUT AND ATTACHING SUPPORTING JOINT AT STEERING KNUCKLE - AR33.20-P-0440-01GH

AH Wheel location, hub

Number	Designation		Model Series 163
BA33.20-P-1003-01D	Locking slotted nut, supporting joint to steering knuckle	NM	300

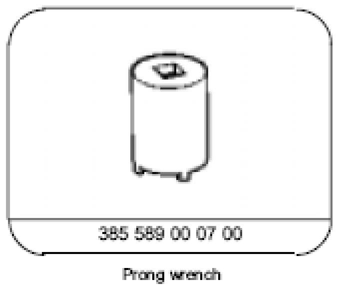


Fig. 38: Identifying Prong Wrench (385 589 00 07 00)

Remove

1. Push supporting joint (7) out of steering knuckle using suitable tool.

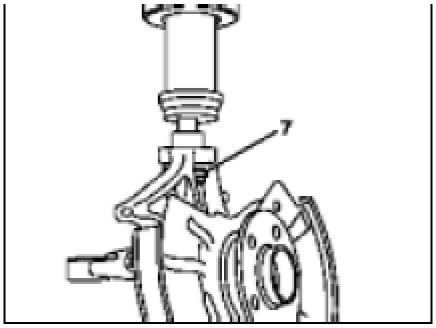


Fig. 39: Identifying Steering Knuckle Supporting Joint

Install

2. Insert supporting joint (7) and attach locking grooved nut (7) AH .
3. Pull in supporting joint (7) using claw-type wrench (044) until it abuts.

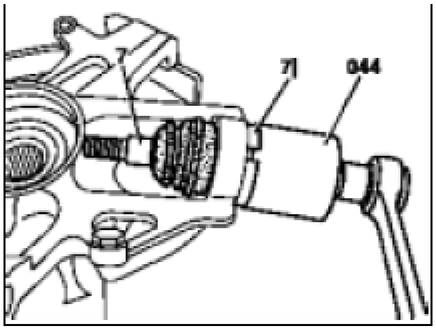
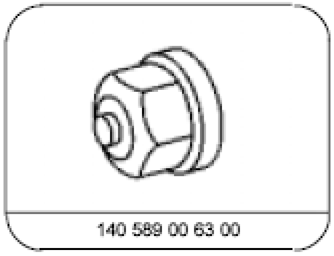


Fig. 40: Identifying Steering Knuckle Supporting Joint And Attaching Locking Grooved Nut

PRESSING OFF AND ATTACHING SUPPORTING JOINT AT LOWER WISHBONE - AR33.20-P-0440-02GH

AH Wheel location, hub

Number	Designation	Model Series 163
BA33.20-P-1002-01D	Self-locking nut, supporting joint to steering knuckle NM	85



Thrust piece

Fig. 41: Identifying Thrust Piece (140 589 00 63 00)

Pressing off

1. Unscrew self-locking nut from supporting joint (7).
2. Mount pressure piece (044a).
3. Press supporting joint (7) out of wishbone using two-arm puller.
4. Remove puller.

Installation

5. Clean tapered connection.
6. Replace self-locking nut and screw on AH .

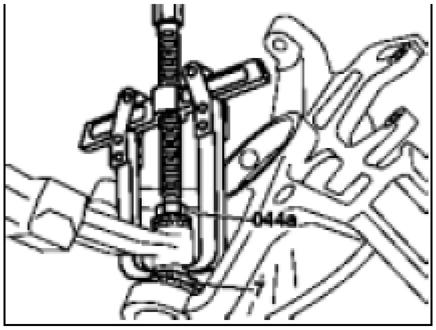


Fig. 42: Identifying Lower Wishbone Supporting Joint, Mount Pressure Piece & Two-Arm Puller

REPLACE SUPPORTING JOINT - AR33.20-P-0440GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

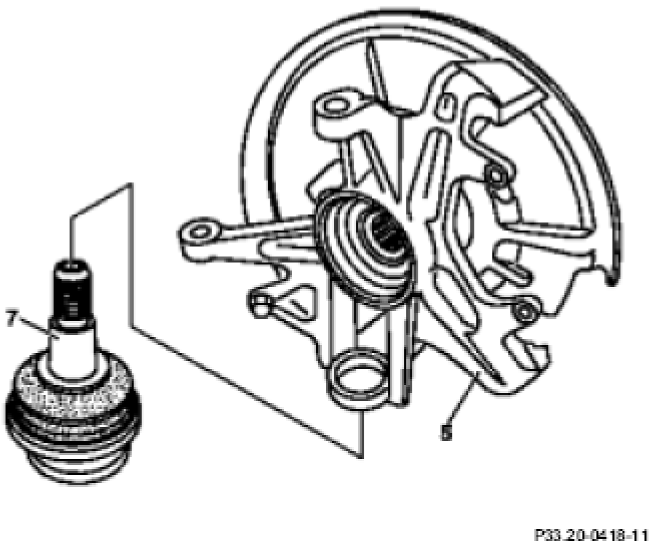


Fig. 43: Identifying Brake Caliper Dust Shield And Supporting Joint

Danger!	**Remove**		
1	Remove steering knuckle		**AR33.25-P-0400GH**
2	Detach and rotate brake caliper dust shield		
3	Press supporting joint (7) out of steering knuckle (5)		**AR33.20-P-0440-01GH**
i	**Install**		
4	Pull in supporting joint (7) with locking slotted round nut until it abuts	Replace locking slotted nut. AH Claw-type wrench	**AR33.20-P-0440-01GH** ***BA33.20-P-1003-01D** **Fig. 38**
5	Attach brake caliper dust shield		
6	Install steering knuckle		**AR33.25-P-0400GH**

AH Wheel location, hub

Number	**Designation**	**Model Series 163**
BA33.20-P-1003-01D	Locking slotted nut, supporting joint to steering knuckle NM	300

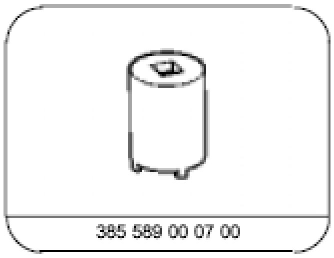


Fig. 44: Identifying Prong Wrench (385 589 00 07 00)

PRESSING OUT AND ATTACHING FOLLOWER JOINT AT STEERING KNUCKLE - AR33.20-P-0500-01GH

AH Wheel location, hub

Number	**Designation**		**Model 163**
BA33.20-P-1001-01D	Self-locking nut, upper transverse control arm follower joint to steering knuckle	NM	50

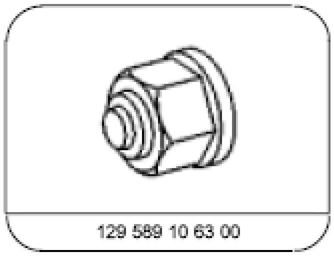


Fig. 45: Identifying Thrust Piece (129 589 10 63 00)

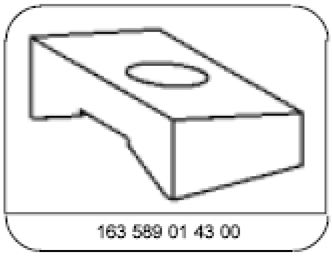


Fig. 46: Identifying Support (163 589 01 43 00)

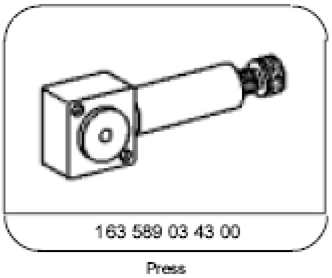


Fig. 47: Identifying Press (163 589 03 43 00)

Pushing off

1. Unscrew self-locking nut from follower joint (8).
2. Mount thrust piece (043a).
3. Place support (043b) on joint of front axle shaft.
4. Push follower joint (8) out of steering knuckle using press (043).
5. Remove press, support, and thrust piece.

Installation

6. Clean conical joint.
7. Install new self-locking nut and tighten.

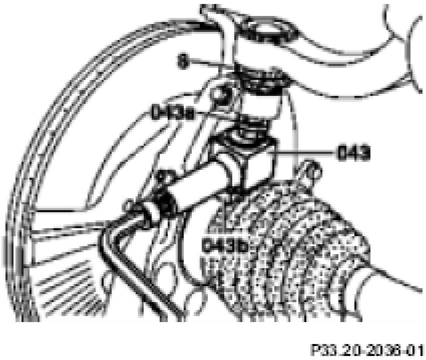


Fig. 48: Identifying Steering Knuckle Follower Joint And Mount Thrust Piece

REMOVING AND INSTALLING UPPER WISHBONE - AR33.20-P-0500GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

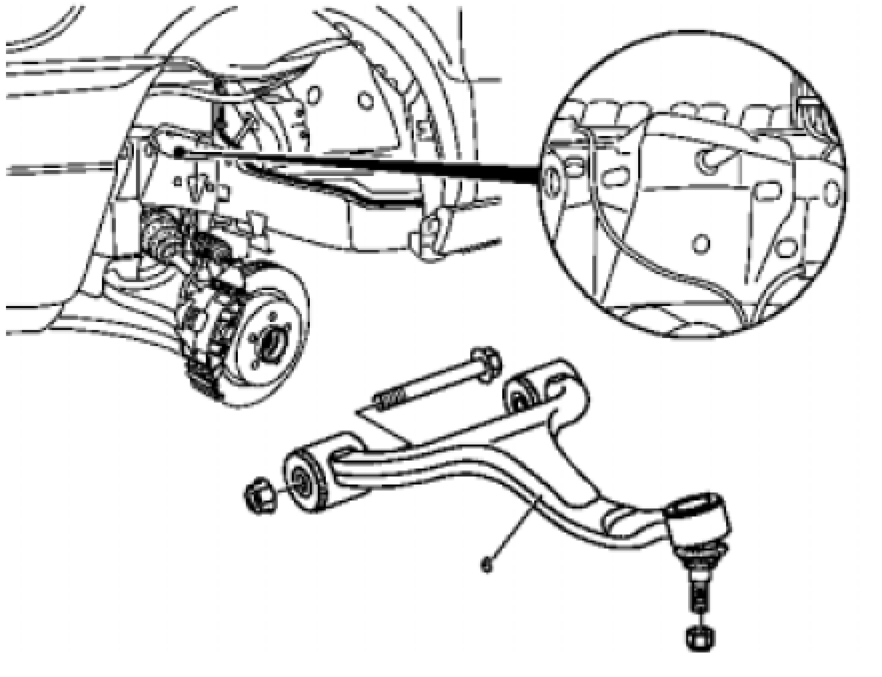


Fig. 49: Identifying Upper Wishbone Components

Danger! i	**Remove/install**		
	Notes on self-locking nuts and bolts	All models	**AH00.00-N-0001-01A**
1 PE	Remove front wheels Remove, remount front road wheels, rotate as necessary		**AP40.10-P-4050GH**
2	Remove shock absorber		**AR32.25-P-0105GH**
3	Detach brake line bracket from steering knuckle		
4	Use extractor to remove guide joint from upper control arm (6)	AH Thrust piece Support Press	**AR33.20-P-0500-01GH** ***BA33.20-P-1001-01D** **Fig. 45** **Fig. 46** **Fig. 47**
5	Secure steering knuckle to shock absorber with a wire to prevent it from tilting down	To avoid leaks within the hydraulic brake system and open circuits in the electrical wiring, never tug on the brake lines or the electrical wiring.	

6	Detach upper transverse control arm (6) from vehicle frame	**Installation:** Gently tighten the new nuts, continuing until they seat. Wait until the vehicle is resting on its road wheels before tightening the bolts. AH	***BA33.20-P-1006-01D**
7	Install in the reverse order		
8	Perform chassis alignment check		**AR40.20-P-0200GH**

AH **Wheel location, hub**

Number	**Designation**		**Model Series 163**
BA33.20-P-1001-01D	Self-locking nut, upper wishbone follower joint to steering knuckle	NM	50
BA33.20-P-1006-01D	Bolt, upper wishbone to frame	NM	120

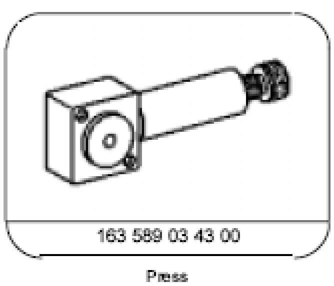


Fig. 50: Identifying Press (163 589 03 43 00)

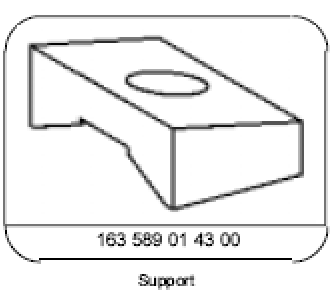


Fig. 51: Identifying Support (163 589 01 43 00)

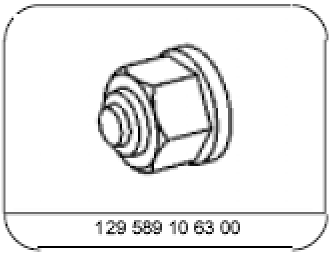


Fig. 52: Identifying Thrust Piece (129 589 10 63 00)

REMOVE/INSTALL LOWER WISHBONE - AR33.20-P-0510GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

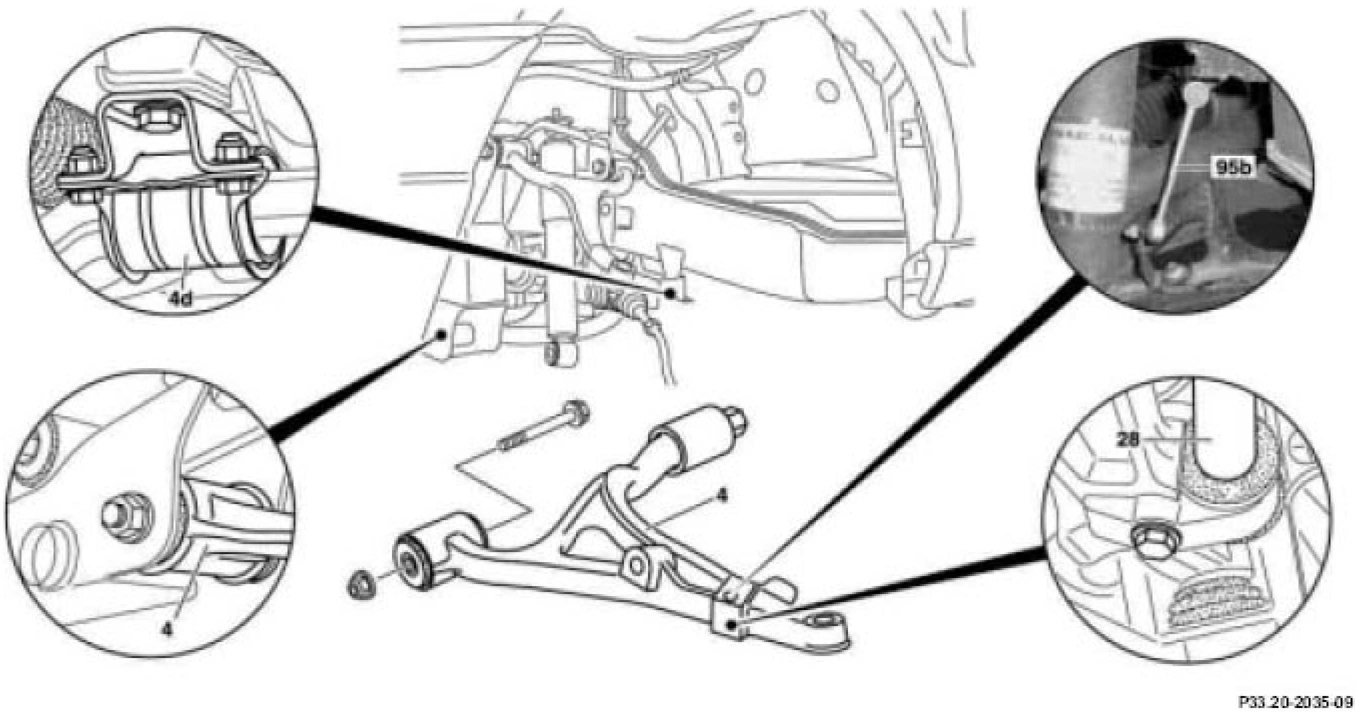


Fig. 53: Identifying Lower Wishbone Components

Danger! i	**Remove/Install**		
	Notes on self-locking nuts and bolts	All models	**AH00.00-N-0001-01A**
1	Remove front springs		**AR32.20-P-0200GH**
2	Remove steering knuckle		**AR33.25-P-0400GH**

3.1	Remove linkage rod for suspension-control module (95b) from lower right control arm	Vehicles with xenon headlamps.	
4	Detach torsion bar (28) from lower control arm	AH	***BA32.20-P-1002-02G**
5	Detach lower control arm (4) from front subframe	**Installation:** Tighten new nuts slightly. Tighten bolt fully only when vehicle is on its wheels and ready to drive. AH	***BA33.20-P-1004-01D**
6	Loosen clamped joint at rear of lower wishbone (4) and fold down bearing shell (4d)	**Installation:** Tighten new nuts slightly. Tighten bolt fully only when vehicle is on its wheels and ready to drive. AH	***BA33.20-P-1005-01D**
	Inspect		
7	Inspect lower control arm for signs of distortion and corrosion		
8	Install in the reverse order		
9	Perform chassis alignment check		**AR40.20-P-0200GH**

AH **Front axle torsion strut**

Number	**Designation**		**Model Series 163**
BA32.20-P-1002-02G	Bolt, torsion bar to wishbone	NM	68

AH **Wheel location, hub**

Number	**Designation**		**Model Series 163**
BA33.20-P-1004-01D	Bolt, lower wishbone at front to front axle carrier	NM	135
BA33.20-P-1005-01D	Bolt, lower wishbone at rear to front axle carrier	NM	30

REPLACE FRONT BEARING OF LOWER WISHBONE - AR33.20-P-0526GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

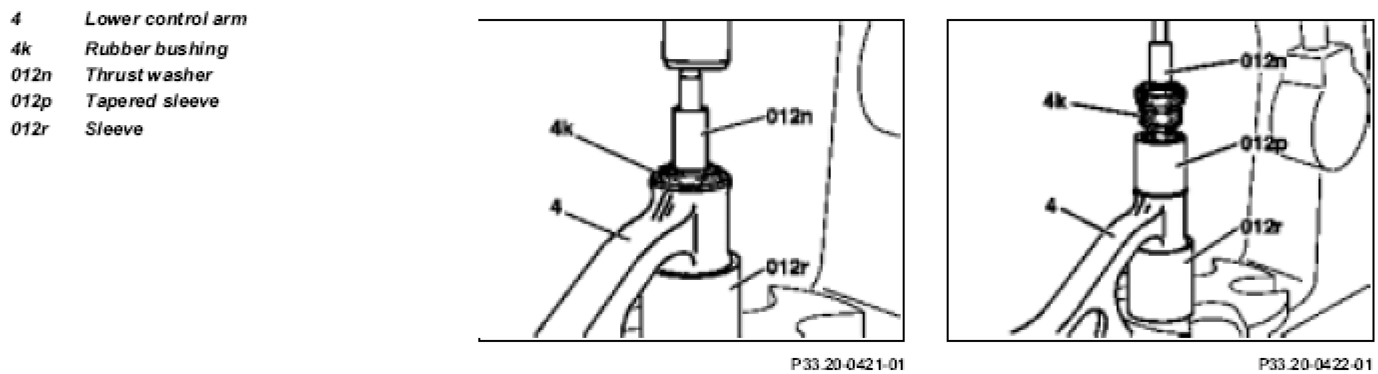


Fig. 54: Identifying Lower Wishbone Front Bearing Replacement For Rubber Bushing

Danger!	**Remove**		
1	Remove lower control arm		**AR33.20-P-0510GH**
2	Use thrust fitting (012n) to press rubber bushing (4k) from lower control arm	Extraction and insertion tool	**Fig. 55**
i	**Install**		
3	Place rubber bushing (4k) in tapered sleeve (012p) and use thrust fitting (012n) to press it into the center of the lower control arm	Coat rubber mount with liquid lubricant. Extraction and insertion tool	***BR00.45-Z-1010-06A** **Fig. 55**
4	Install lower control arm		**AR33.20-P-0510GH**

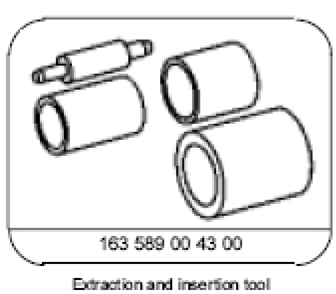


Fig. 55: Identifying Extraction And Insertion Tool (163 589 00 43 00)

Repair materials

Number	Designation	Order number
BR00.45-Z-1010-06A	Antifriction agent	A 000 989 03 67

REMOVING AND INSTALLING STEERING KNUCKLE - AR33.25-P-0400GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

Shown on vehicle with floating caliper

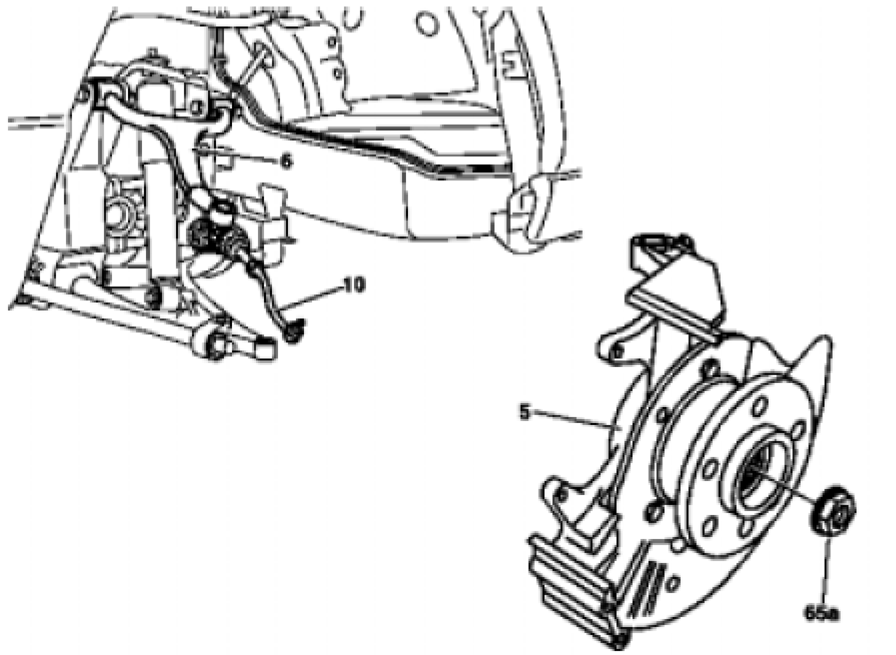


Fig. 56: Identifying Steering Knuckle Components

Danger! i	**Remove/Install**		
	Notes on self-locking nuts and bolts	All models	**AH00.00-N-0001-01A**
1 PE	Remove front wheels Remove/install wheels, rotate if necessary		**AP40.10-P-4050GH**
2	Detach collar nut (65a) from front axle shaft	**Installation:** Replace collar nut (65a) AH	***BA33.30-P-1001-02B**
3	Unclip cables for speed sensor and brake lining wear indicator from guides	**Installation:** Pay attention to correct line routing.	
4	Remove brake disc	Model 163.113 up to VIN A289564, X754619, model 163.154 up to VIN A289564, 163.136, models 163.154 /157 with USA version, code 494a Model 163.113 as of VIN A289565, X754620, model 163.154 as of FIN A289565, 163.128 /172 /174 /175, models 163.154 /157 except USA version, code 494a	**AR42.10-P-0220GH** **AR42.10-P-0220GI**

5	Remove rpm sensor with bracket from steering knuckle		**AR42.30-P-0712GH**
6	Detach tie rod (10) from steering knuckle	Check rubber boot and ball joint for wear and damage. AH Thrust piece Puller	**AR46.40-P-0200-02C** ***BA46.40-P-1001-01C** **Fig. 16** **Fig. 58**
7	Press out follower joint from upper transverse control arm (6) using puller	Check rubber boot and ball joint for wear and damage. Thrust piece Support Press	**AR33.20-P-0500-01GH** ***BA33.20-P-1001-01D** **Fig. 45** **Fig. 46** **Fig. 47**
8	Press front axle shaft out of front axle shaft flange	Extraction and insertion tool	**AR33.30-P-0620-04GH** **Fig. 18**
9	Press supporting joint off lower wishbone	Secure steering knuckle to prevent it from falling down, in order to rule out damage to the steering knuckle Check rubber boot and ball joint for wear and damage. AH Thrust piece	**AR33.20-P-0440-02GH** ***BA33.20-P-1002-01D** **Fig. 16**
10	Remove steering knuckle (5) forwards		
	Check		
11 PE	Check supporting joint Inspect front axle joint for play, inspect rubber boots		**AP33.20-P-3353GH**
12	Install in the reverse order		
13.1	Perform chassis alignment check	After installation of new parts.	**AR40.20-P-0200GH**

AH Wheel location, hub

Number	Designation		Model 163
BA33.20-P-1001-01D	Self-locking nut, upper wishbone follower joint to steering knuckle	Nm	50
BA33.20-P-1002-01D	Self-locking nut, supporting joint to steering knuckle	Nm	85

AH Front axle shaft

Number	Designation		Model 163
BA33.30-P-1001-02B	Nut, front axle shaft to front axle shaft flange	Nm	490

AH Track rod

Number	Designation		Model 163
BA46.40-P-1001-01C	Self-locking nut, tie rod to steering knuckle	Nm	55

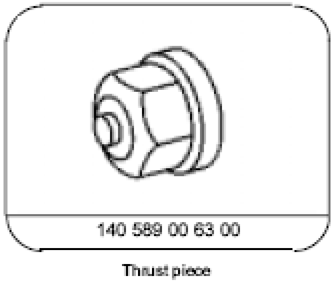


Fig. 57: Identifying Thrust Piece (140 589 00 63 00)

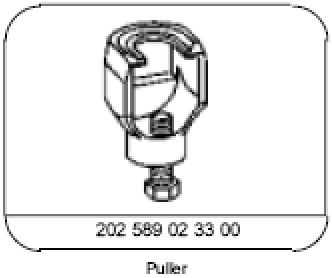


Fig. 58: Identifying Puller (202 589 02 33 00)

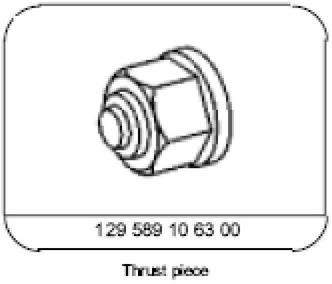


Fig. 59: Identifying Thrust Piece (129 589 10 63 00)

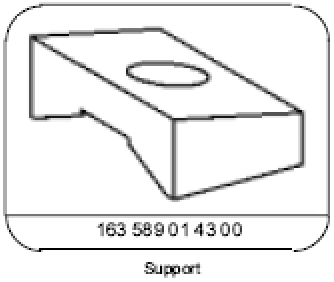


Fig. 60: Identifying Support (163 589 01 43 00)

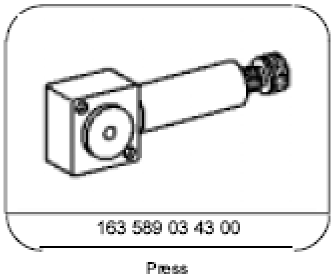


Fig. 61: Identifying Press (163 589 03 43 00)

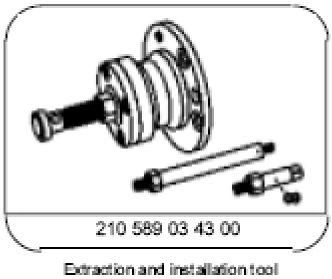


Fig. 62: Identifying Extraction And Installation Tool (210 589 03 43 00)

CHECKING FRICTION TORQUE OF TAPERED ROLLER BEARINGS - AR33.30-P-0470-04GH

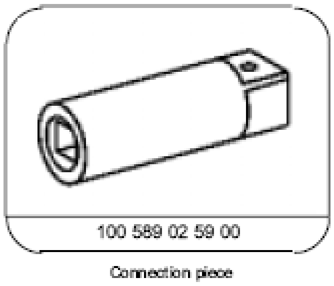


Fig. 63: Identifying Connection Piece (100 589 02 59 00)

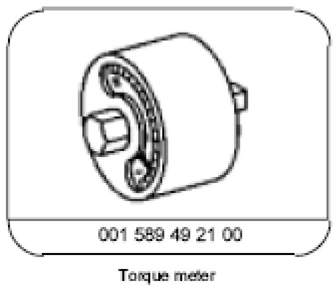


Fig. 64: Identifying Torque Meter (001 589 49 21 00)

Commercially available tools

Number	Designation
WH58.30-Z-1013-06A	Wrench bit 41 mm hexagon 3/4 inch four-point

1. Measure and note friction torque using torque meter (040b) and connecting piece on the hexagon collared nut.

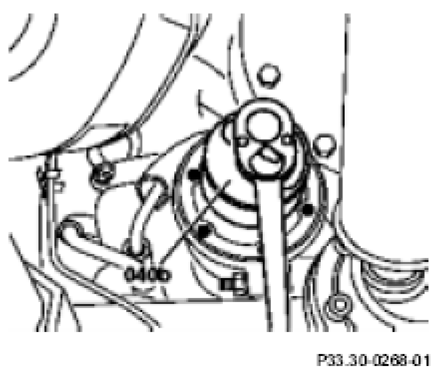


Fig. 65: Identifying Torque Meter

CHECK FRONT AXLE GEAR OIL LEVEL AND TOP UP IF NECESSARY - AR33.30-P-0525-02GH

Modification notes

8.1.07	Filling capacity, Specifications for Operating Fluids	Model 163	***BF33.30-P-1001-03B**

☞AH **Front final-drive unit**

Number	Designation		Model 163
BA33.30-P-1002-03B	Oil filler screw, front axle gear	Nm	50
BA33.30-P-1003-03B	Oil drain screw, front axle gear	Nm	50

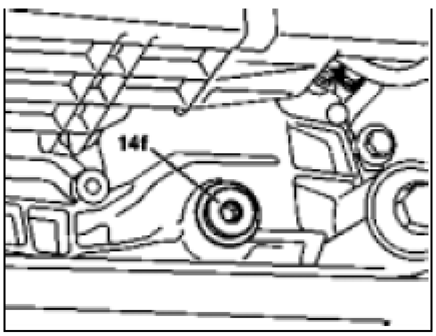
☞GF **Front axle gear**

Number	Designation				Model 163
BF33.30-P-1001-03B	Filling capacity	Front axle gear		Liters	1.2
		Specifications for		Sheet	BB00.40-P-0235-

	Operating Fluids	07B

1. Clean area around oil filler screw (14f).
2. Remove oil filler screw (14f).

   The front axle gear is correctly filled when the oil reaches the lower edge of the filler opening. Top up if necessary. If the oil level check is carried out when the front axle gear is **warm** , do not drain off oil discharged as a result of thermal expansion.

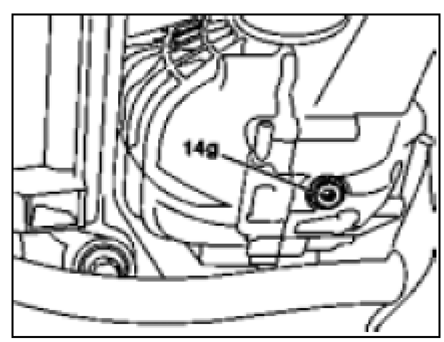


P33.30-0273-01

Fig. 66: Identifying Oil Filler Screw

3. Replace seal ring for oil filler screw.
4. Screw in oil filler screw and tighten.

14g Oil drain screw



P33.30-0272-01

Fig. 67: Identifying Oil Drain Screw

REMOVE/INSTALL FRONT AXLE GEAR - AR33.30-P-0525GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

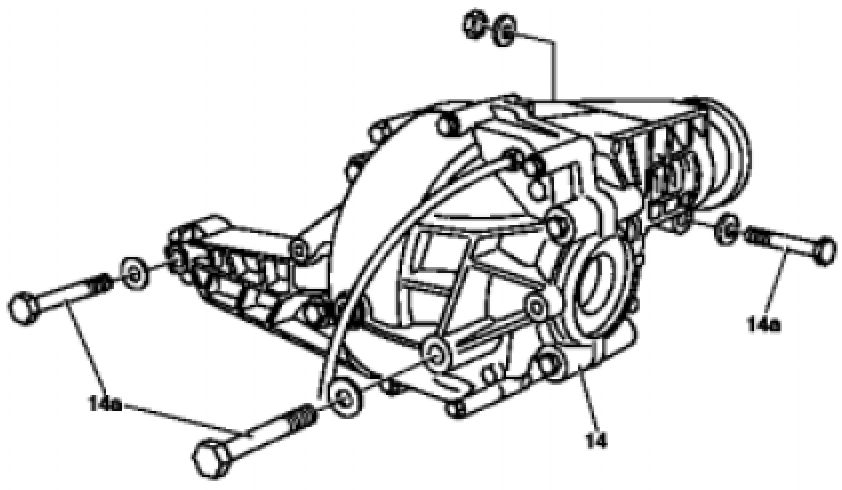


Fig. 68: Identifying Front Axle Gear Components

Modification notes

8.1.07	Filling capacity, Specifications for Operating Fluids	Model 163	***BF33.30-P-1001-03B**

Danger! i	**Remove/install**		
1 PE	Remove front wheels Remove/install wheels, rotate if necessary		**AP40.10-P-4050GH**
2	Drain front axle gear oil	**Installation:** ? Check front axle gear oil level and top up if necessary Oil drain screw: ? AH Oil filler plug: ? AH GF	**AR33.30-P-0525-02GH** ***BA33.30-P-1003-03B** ***BA33.30-P-1002-03B** ***BF33.30-P-1001-03B**
3	Unbolt propeller shaft at flange on front axle transmission	AH	***BA41.20-P-1001-01A**
4	Press both follower joints out of upper transverse control arms using puller	Check rubber boot and ball joint for wear and damage. AH	**AR33.20-P-0500-01GH** ***BA33.20-P-1001-01D**

		Thrust piece Support Press	**Fig. 45** **Fig. 46** **Fig. 47**
5	Remove lower engine compartment paneling	Model 163.157 /172 /174 /175 Model 163.113 /128	**AR61.20-P-1105GH** AR94.30-P-5400GH
6	Press left and right front axle shafts out of front axle gear	Do not damage shield. Suspend steering knuckle with wire.	
7	Disconnect vent hose from front axle gear		
8	Remove bolts (14a)	AH	***BA33.30-P-1001-03B**
9	Remove front axle gear (14).		
10	Install in the reverse order		

AH Wheel location, hub

Number	Designation		Model 163
BA33.20-P-1001-01D	Self-locking nut, upper wishbone follower joint to steering knuckle	Nm	50

AH Front final-drive unit

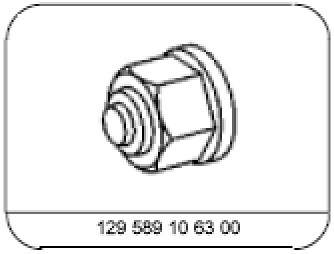
Number	Designation		Model 163
BA33.30-P-1001-03B	Bolt securing front axle gear to front axle carrier	Nm	135
BA33.30-P-1002-03B	Oil filler screw, front axle gear	Nm	50
BA33.30-P-1003-03B	Oil drain screw, front axle gear	Nm	50

AH Propeller shaft of front axle gear

Number	Designation		Model 163
BA41.20-P-1001-01A	Self-locking bolt of propeller shaft to front-axle gear flange	Nm	40

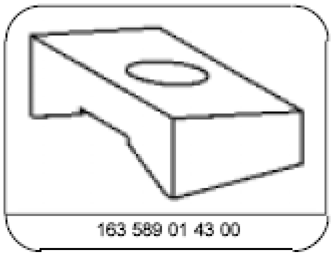
GF Front axle gear

		Number	Designation	Model 163
BF33.30-P-1001-03B	Filling capacity	Front axle gear	Liters	1.2
	Specifications for Operating Fluids		Sheet	BB00.40-P-0235-07B



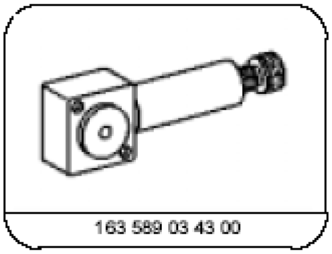
Thrust piece

Fig. 69: Identifying Thrust Piece (129 589 10 63 00)



Base

Fig. 70: Identifying Base (163 589 01 43 00)

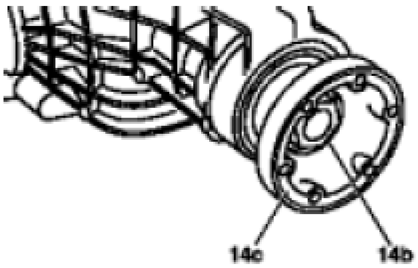


Press

Fig. 71: Identifying Press (163 589 03 43 00)

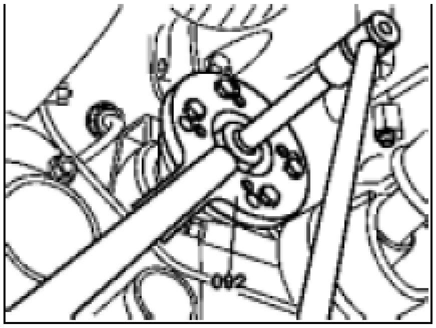
REPLACE SHAFT SEAL ON DRIVE PINION - AR33.30-P-0530GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175



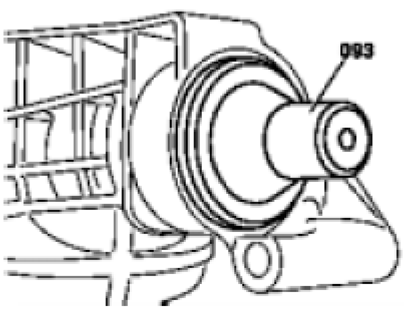
P33.30-0262-01

Fig. 72: Identifying Drive Flange & Hexagon Collar Nut



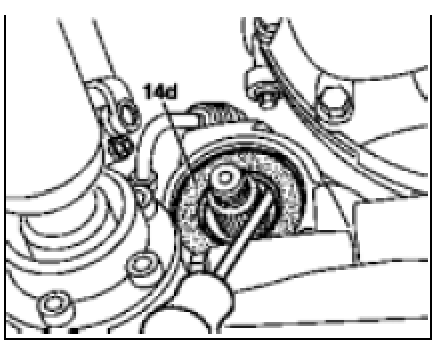
P33.30-0263-01

Fig. 73: Counterholding Drive Flange Using Retainer Wrench



P33.30-0265-01

Fig. 74: Identifying Drift



P33.30-0264-01

Fig. 75: Identifying Radial Sealing Ring

Modification notes

8.1.07	Filling capacity, Specifications for Operating Fluids	Model 163	***BF33.30-P-1001-03B**

Danger! i	**Remove/install**		
	Notes on self-locking nuts		**AH00.00-N-**

	and bolts	All models	**0001-01A**
1	Unbolt propeller shaft at flange on front axle transmission	AH	***BA41.20-P-1001-01A**
2	Measure and note friction torque	Connection piece Torque meter USA 41 mm socket wrench bit, hexagon, 3/4 inch square	**AR33.30-P-0470-04GH** **Fig. 63** **Fig. 64**
3	Loosen and remove hexagon collar nut (14b)	**Installation:** Replace hexagon collar nut and locking plate. Tighten hexagon collar nut in stages until the previously measured friction torque is obtained. Secure hexagon collar nut. Counterhold drive flange using retainer wrench (092). Retainer wrench	**Fig. 78**
4	Detach drive flange (14c)		
5	Press out radial sealing ring (14d) using a suitable tool Universal hypoid gear oils (SAE 85 W-90)	**Installation:** Drive in radial sealing ring using drift (093). Replace radial sealing ring and coat lip with universal hypoid gear oil: Drift	BB00.40-P-0235-07A **Fig. 79**
6	Install in the reverse order		
7	Check front axle oil level	GF	***BF33.30-P-1001-03B**

AH Propeller shaft of front axle gear

Number	Designation		Model 163
BA41.20-P-1001-01A	Self-locking bolt of propeller shaft to front-axle gear flange	Nm	40

GF Front axle gear

Number	Designation			Model 163
BF33.30-P-1001-03B	Filling capacity	Front axle gear	Liters	1.2
		Specifications for Operating Fluids	Sheet	BB00.40-P-0235-07B

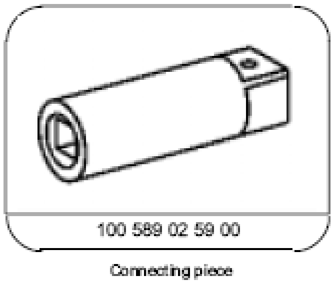


Fig. 76: Identifying Connecting Piece (100 589 02 59 00)

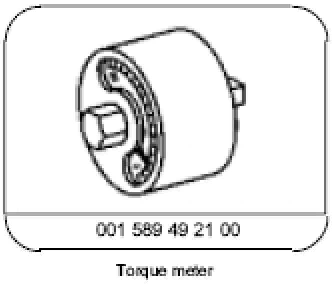


Fig. 77: Identifying Torque Meter (001 589 49 21 00)

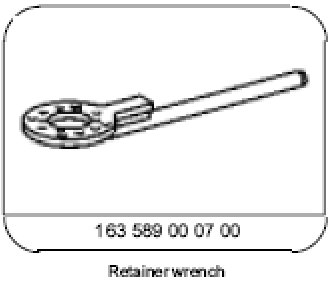


Fig. 78: Identifying Retainer Wrench (163 589 00 07 00)

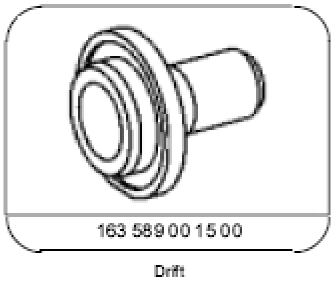
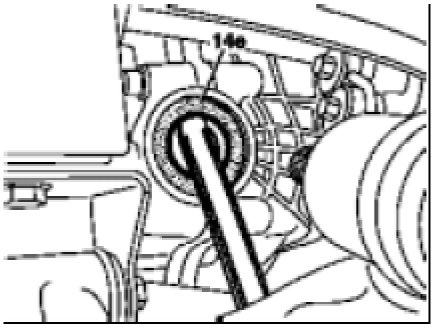


Fig. 79: Identifying Drift (163 589 00 15 00)

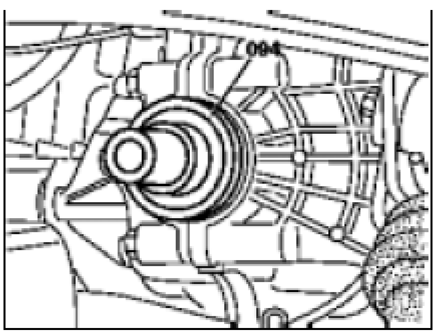
REMOVE/INSTALL RADIAL SHAFT SEAL AT FRONT AXLE GEAR OF FRONT AXLE SHAFT - AR33.30-P-0545GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175



P33.30-0267-01

Fig. 80: Identifying Press Out Radial Shaft Sealing Ring



P33.30-0270-01

Fig. 81: Identifying Radial Shaft Sealing Ring And Drift

Modification notes

8.1.07	Filling capacity, Specifications for Operating Fluids	Model 163	***BF33.30-P-1001-03B**

Danger! i	**Remove/install**		
	Notes on self-locking nuts and bolts	All models	**AH00.00-N-0001-01A**
1 PE	Remove front wheels Remove/install wheels, rotate if necessary		**AP40.10-P-4050GH**
2	Drain front axle oil	GF	***BF33.30-P-1001-03B**
3	Press follower joint out of upper transverse control arm using puller	AH Thrust piece Support Press	**AR33.20-P-0500-01GH** ***BA33.20-P-1001-01D** **Fig. 45** **Fig. 46** **Fig. 47**

4	Lever front axle shaft out of front axle transmission	Do not damage shield.	
5	Press out radial shaft sealing ring (14e) using a suitable tool	**Installation:** Drive in radial shaft seal using drift (094). Install new radial shaft seal and coat lip with universal hypoid gear oil.	
	Universal hypoid gear oils (SAE 85 W-90)	Drift	BB00.40-P-0235-07A **Fig. 85**
6	Install in the reverse order		

AH Wheel location, hub

Number	Designation		Model 163
BA33.20-P-1001-01D	Self-locking nut, upper wishbone follower joint to steering knuckle	Nm	50

GF Front axle gear

Number	Designation			Model 163
BF33.30-P-1001-03B	Filling capacity	Front axle gear	Liters	1.2
		Specifications for Operating Fluids	Sheet	BB00.40-P-0235-07B

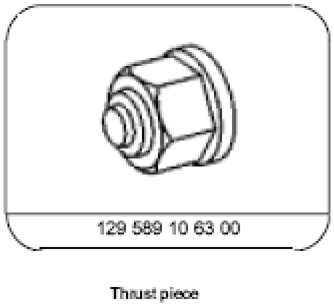


Fig. 82: Identifying Thrust Piece (129 589 10 63 00)

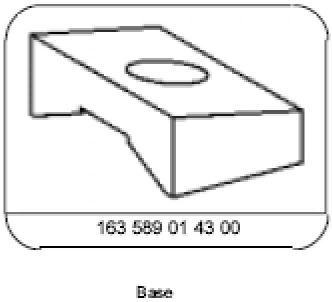
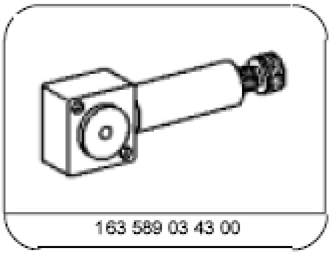
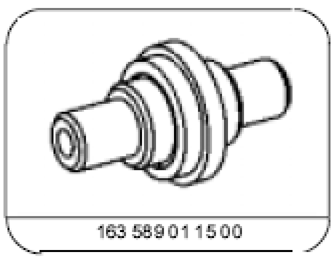


Fig. 83: Identifying Base (163 589 01 43 00)



Press

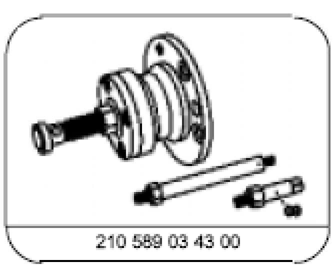
Fig. 84: Identifying Press (163 589 03 43 00)



Drift

Fig. 85: Identifying Drift (163 589 01 15 00)

PRESS FRONT AXLE SHAFT OUT OF FRONT AXLE SHAFT FLANGE - AR33.30-P-0620-04GH



Extraction and installation tool

Fig. 86: Identifying Extraction And Installation Tool (210 589 03 43 00)

1. Push front axle shaft out of front axle shaft flange using extraction and installation tool.

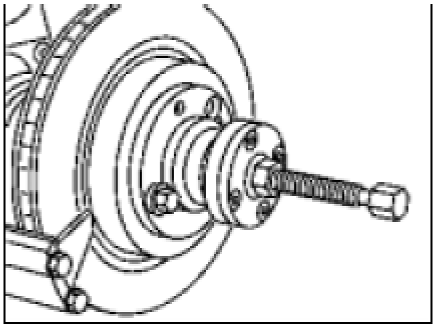


Fig. 87: Identifying Front Axle Shaft Flange

REMOVE/INSTALL FRONT AXLE SHAFTS - AR33.30-P-0620GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

Illustration shows left-hand side

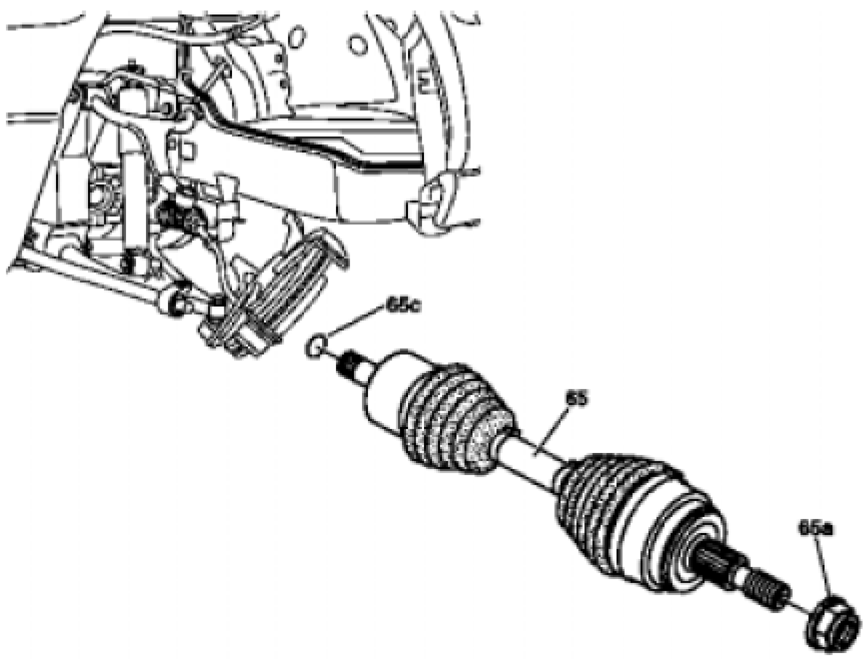


Fig. 88: Identifying Front Axle Shaft Components

Danger! i	**Remove/Install**		
	Notes on self-locking nuts and bolts	All models	**AH00.00-N-0001-01A**
1	Remove rear wheels		

PE	Remove/install wheels, rotate if necessary		AP40.10-P-4050GH
2	Detach hexagon collared nut (65a) from front axle shaft	Replace hexagon nut with collar AH	*BA33.30-P-1001-02B
3	Remove front axle brake caliper	Hang the floating / fixed caliper to one side with a hook to relieve the strain on the brake hose. Leave brake hose connected. Model 163.136, model 163.113 up to VIN A289564, X754619, model 163.154 up to VIN A289564, model 163.154 /157 only with US version, code 494a. Model 163.128 /172 /174 /175, model 163.113 as of VIN A289565, X754620, model 163.154 as of VIN A289565, model 163.154 /157 except US version, code 494a.	AR42.10-P-0070GH AR42.10-P-0070GI
4	Detach track rod from steering knuckle	Check rubber boot and ball joint for wear and damage. AH Thrust piece Puller	AR46.40-P-0200-02C *BA46.40-P-1001-01C Fig. 16 Fig. 17
5	Press follower joint out of upper transverse control arm using puller	Check rubber boot and ball joint for wear and damage AH Thrust piece Support Press	AR33.20-P-0500-01GH *BA33.20-P-1001-01D Fig. 45 Fig. 46 Fig. 47
6	Press front axle shaft (65) out of front axle shaft flange	Hang steering knuckle to one side using wire. Extraction and installation tool	AR33.30-P-0620-04GH Fig. 18
7	Lever front axle shaft out of front axle gear	Do not damage shield.	
8	Remove front axle shaft (65)	**Installation:** Make sure that the opening in the circlip (65c) faces downward before inserting into the front axle gear.	
9	Install in the reverse order		

AH **Wheel location, hub**

Number	**Designation**		**Model 163**
BA33.20-P-1001-01D	Self-locking nut, upper transverse control arm follower joint to steering knuckle	Nm	50

AH Front axle shaft

Number	Designation		Model 163
BA33.30-P-1001-02B	Nut, front axle shaft to front axle shaft flange	Nm	490

AH Track rod

Number	Designation		Model 163
BA46.40-P-1001-01C	Self-locking nut, track rod to steering knuckle	Nm	55

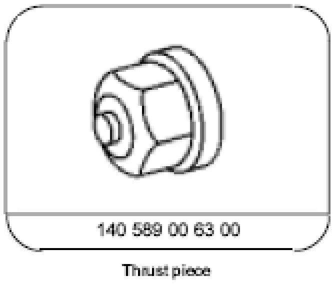


Fig. 89: Identifying Thrust Piece (140 589 00 63 00)

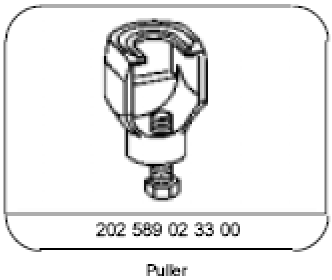


Fig. 90: Identifying Puller (202 589 02 33 00)

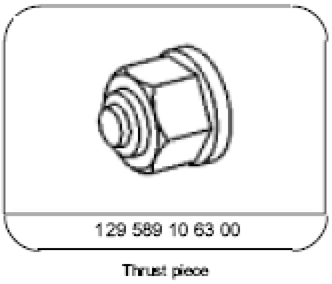


Fig. 91: Identifying Thrust Piece (129 589 10 63 00)

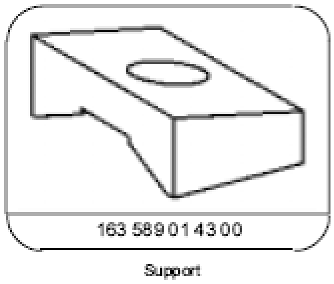


Fig. 92: Identifying Support (163 589 01 43 00)

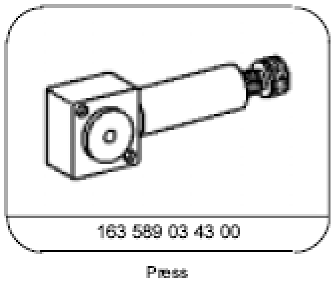


Fig. 93: Identifying Press (163 589 03 43 00)



Fig. 94: Identifying Extraction And Installation Tool (210 589 03 43 00)

DETACHING AND ATTACHING RUBBER BOOTS AT JOINT - AR33.30-P-0660-01GH

GF Front axle shaft

Number	Designation			Model 163
BF33.30-P-1001-02C	Filling capacity	Inner joint rubber boot	g	155
		Inner joint inner chamber	g	110
BF33.30-P-1002-02C	Filling capacity	Outer joint rubber boot	g	155
		Outer joint inner chamber	g	65

Commercially available tools

Number	Designation
WH58.30-Z-1011-02A	Clamping pliers

Removal:

1.1 Remove hose clamps with tab (37n, 37r and 37k, 37q) using side cutting pliers.

Shown on outer joint, hose clamp with tab, 1st version

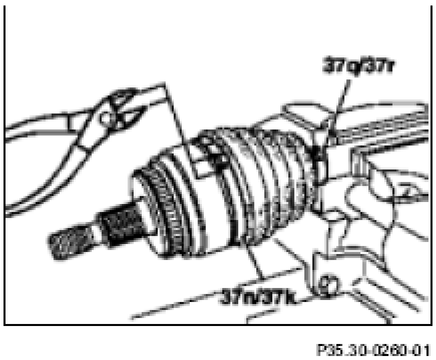


Fig. 95: Identifying Hose Clamps With Tab - 1St Version

1.2 Open and remove large hose clamps with tensioning bead (37n, 37k) using pliers (078). Remove small hose clamps with tab (37r, 37q) using side cutting pliers.

2 Pull off rubber boot.

Shown on outer joint, large hose clamp with tensioning bead, 2nd version.

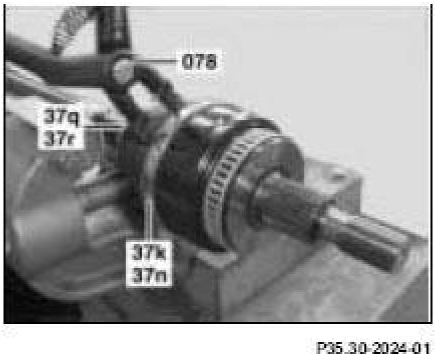
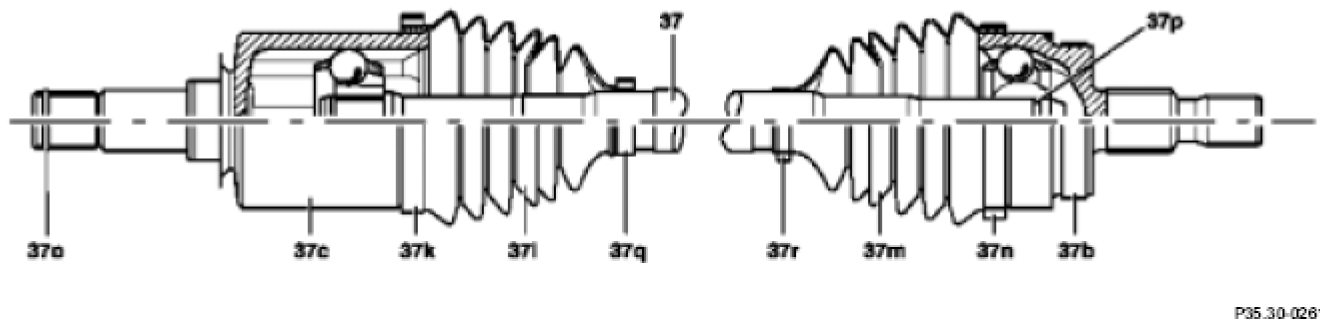


Fig. 96: Identifying Large Hose Clamps With Tensioning Bead - 2nd Version



37	Front axle shaft	37l	Rubber boot (inner)	37o	Circlip
37b	Outer joint	37m	Outer rubber boot	37p	Circlip
37c	Inner joint	37n	Large hose clamp (illustrated with tab)	37q	Small hose clamp
37k	Large hose clamp (illustrated with tab)			37r	Small hose clamp

Fig. 97: Identifying Front Axle Shaft Components

Installation

3 Scrape grease off inside of rubber boot and pack into joint; replace grease if necessary. Observe filling quantity.

4 Push new rubber boot into correct position.

Replace hose clamps.

5.1 Press hose clamps with tab (37n, 37r and 37k, 37q) together using suitable commercially-available pincers. Check that the hose clamps are properly seated.

The connection of the hose clamp on the inner joint must be at 180° to the connection of the hose clamp on the outer joint so that no imbalance is produced.

Shown on outer joint, hose clamp with tab, 1st version

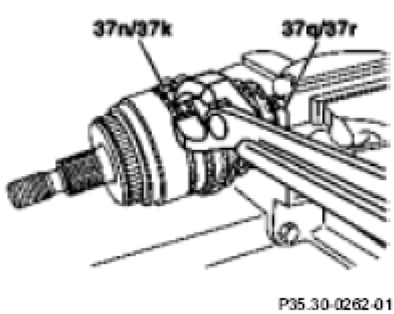


Fig. 98: Identifying Hose Clamps With Tab - 1st Version

5.2 Mount large hose clamps with tensioning bead (37n, 37k) using pliers (078). Press small hose clamps with tab (37r, 37q) together using suitable commercially-available pincers. Check that the hose clamps are properly seated.

Shown on outer joint, large hose clamp with tensioning bead, 2nd version.

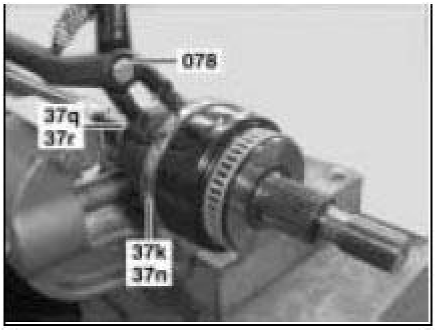


Fig. 99: Identifying Large Hose Clamps With Tensioning Bead - 2nd Version

DRIVING OUT AND PRESSING ON OUTER JOINT - AR33.30-P-0660-02GH

Driving out

1. Drive out outer joint (37b) using 32 mm open wrench.

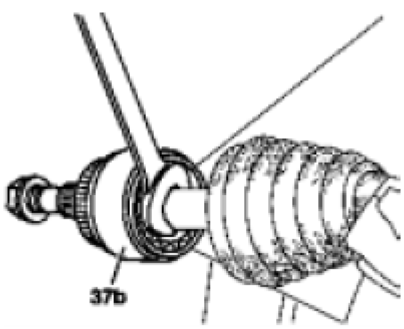


Fig. 100: Identifying Driving Out Outer Joint

Pressing on

2. Install new locking ring (37p).
3. Press on outer joint (37b) making sure that the locking ring (37p) engages in the joint hub.

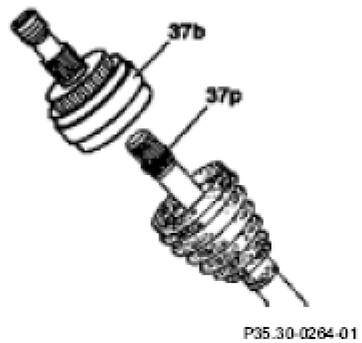


Fig. 101: Identifying Outer Joint And Locking Ring

REPLACE RUBBER BOOTS ON FRONT AXLE SHAFT - AR33.30-P-0660GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

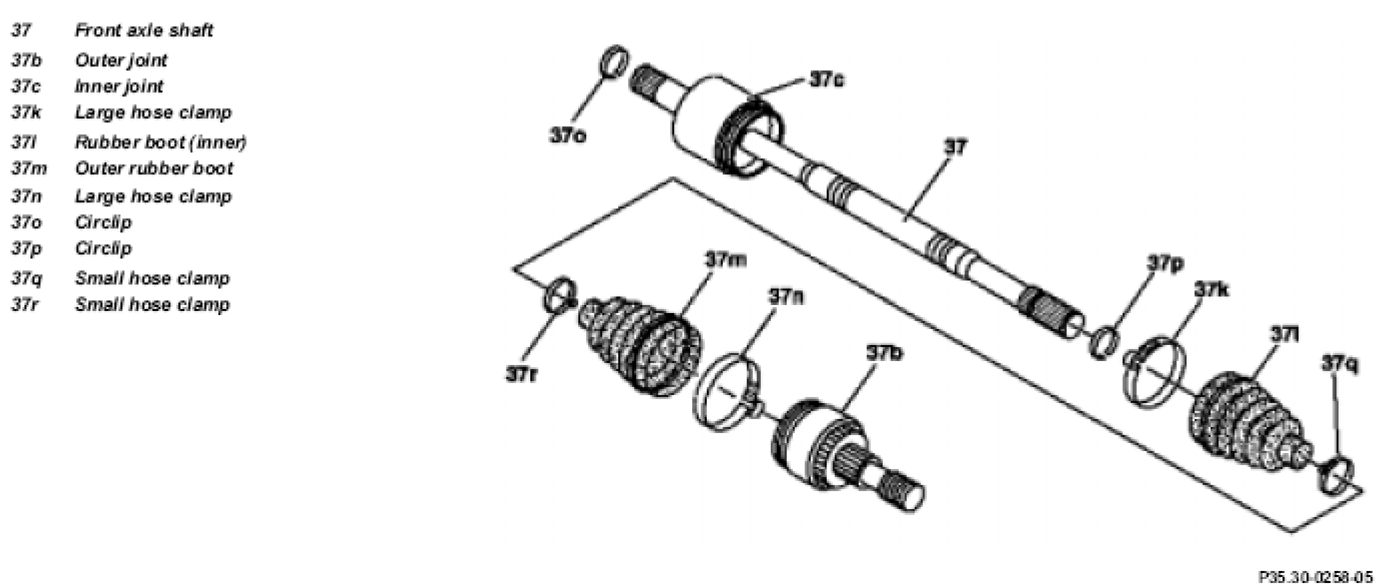


Fig. 102: Identifying Front Axle Shaft Components

⚠ Danger!	**Removing**		
1	Remove front axle shaft (37)		**AR33.30-P-0620GH**
AR	Disassemble/assemble		
2	Detach inner rubber boot (37l) or outer rubber boot (37m) from ball joint	Inner ball joint: ? GF	**AR33.30-P-0660-01GH** ***BF33.30-P-1001-02C**

		Outer joint: ? GF	*BF33.30-P-1002-02C
3	Drive out outer joint (37b)		AR33.30-P-0660-02GH
4	Pull inner rubber boot (37l) or outer rubber boot (37m) off front axle shaft (37)	**Removal:** Left-hand front axle shaft: The inner rubber boot (37l) can only be removed when the outer joint (37b) is driven out. Right-hand front axle shaft: The inner rubber boot (37l) cannot be replaced as the shaft has a reinforcement in the center. If necessary, replace front axle shaft **Installation:** To push on the rubber boots, place suitable assembly sleeve on the splined shaft profile of the rear axle shaft.	
5	Replace circlips (37o, 37p)		
6	Assemble in the reverse order		
i	Install		
7	Install front axle shaft (37)		AR33.30-P-0620GH

GF **Front axle shaft**

Number	**Designation**			**Model 163**
BF33.30-P-1001-02C	Filling capacity	Inner joint rubber boot	g	155
		Inner joint inner chamber	g	110
BF33.30-P-1002-02C	Filling capacity	Outer joint rubber boot	g	155
		Outer joint inner chamber	g	65

MAINTENANCE

FRONT AXLE CARRIER - RETIGHTENING BOLTS - AP33.10-P-3373GH

MODEL 4JG163.### ## up to 221505, WDC163.### ## up to 734087

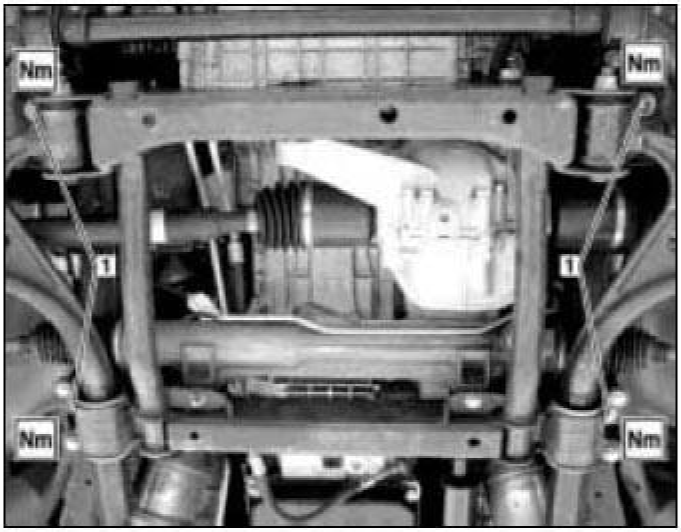


Fig. 103: Identifying Front Axle Carrier - Retightening Bolts

	Tightening		
Nm 1	**Lethal injuries** are possible if vehicle slips off of lifting platform Place vehicle on lift	Align vehicle between lifting platform columns and position the four hoisting plates beneath the lifting platform mounting points specified by the vehicle manufacturer.	**AS00.00-Z-0010-01A**
2	Torque axle carrier bolts (1)	AH	***BA33.10-P-1001-01C**

AH Front axle carrier

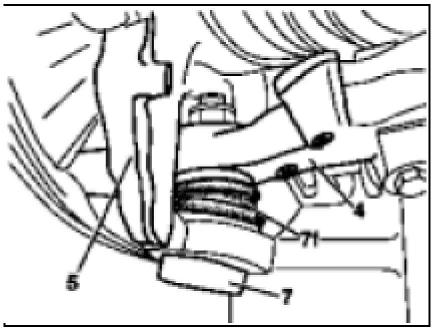
Number	**Designation**		**Model 163 up to 31/08/00**
BA33.10-P-1001-01C	Bolt, front axle carrier to frame	Nm	200

INSPECT FRONT AXLE JOINT FOR PLAY, INSPECT RUBBER BOOTS - AP33.20-P-3353GH

MODEL 163.113 /128 /136 /154 /157 /172 /174 /175

Supporting joint
4 Bottom track control arm
5 Steering knuckle
7 Support joint
7f Rubber boot

Follower joint
5 Steering knuckle
6 Upper track control arm
8f Boot (follower joint)



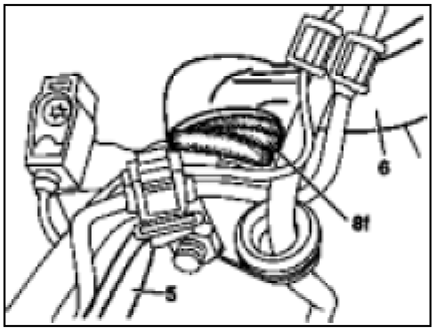


Fig. 104: Identifying Supporting Joint, Bottom Track Control Arm And Rubber Boots

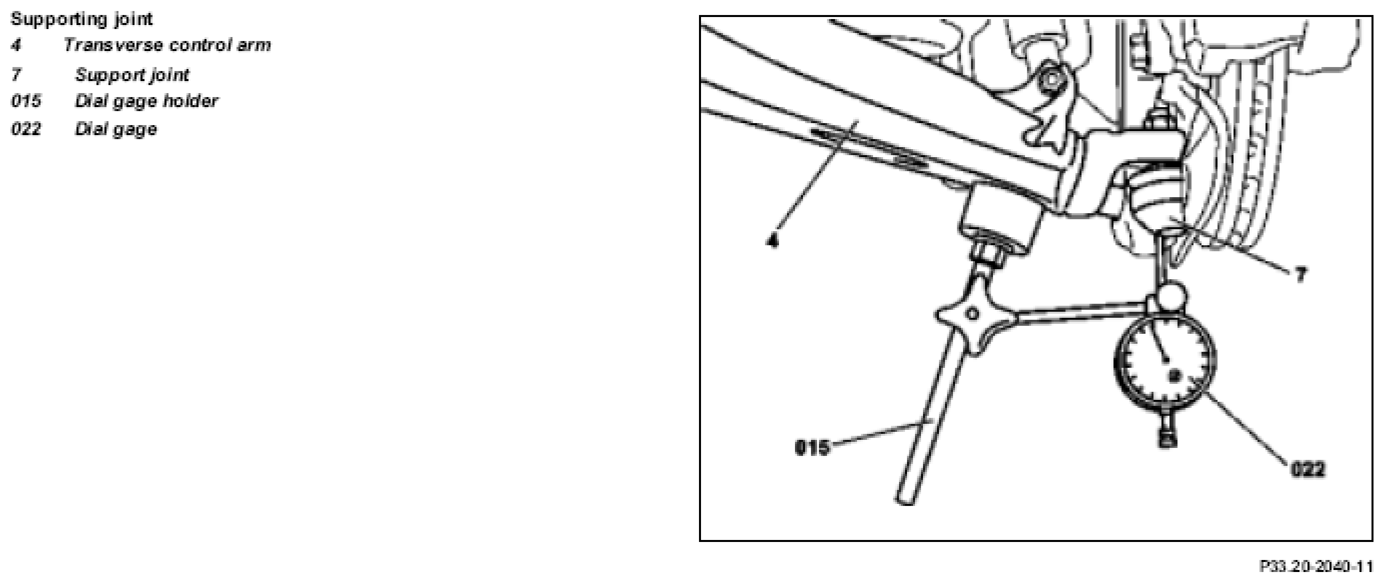


Fig. 105: Identifying Supporting Joint, Transverse Control Arm And Dial Gage Holder

Danger!	**Remove**		
Nm	**Risk of death.** Death may result if vehicle slips or topples from the lifting platform.	Align vehicle between columns of lifting platform and position the four support plates below support points specified by vehicle manufacturer.	**AS00.00-Z-0010-01A**
1	Remove front wheels		**AP40.10-P-4050GH**
	Inspect		
2	Check rubber boot (7f) on supporting joint for leakage and condition	Visual inspection, if rubber boot is leaking (e.g. grease flowing out): ? Replace supporting joint	**AR33.20-P-0440GH**
3	Check rubber boot (8f) on follower joint for leakage and condition.	Visual inspection, if rubber boot is leaking (e.g. grease flowing out): ? Replace upper transverse control arm	**AR33.20-P-0500GH**
4	Mount dial gage (022) with gage stand (015) on the underside of the transverse control arm (4) and pre-tension	The feeler must be set firmly up against the face of the supporting joint dome cap (7) with an indicating pretightening of 3mm.	
5		Steering angle must not be altered while measuring. Determine the amount of play in the supporting joint (7) through vertical pulling	

	Determine the play in the supporting joint (7)	and pushing of the wheel hub. If measurement yields a play > or = 0,4 mm the supporting joint (7) must be replaced, refer to: ?	
		Replace supporting joint	**AR33.20-P-0440GH**
6	Repeat the operation on the other side of the vehicle		
i	Install		
7	Remove dial gage and gage stand		
8	Fit front wheels		**AP40.10-P-4050GH**



Fig. 106: Identifying Dial Indicator Holder (363 589 02 20 00)

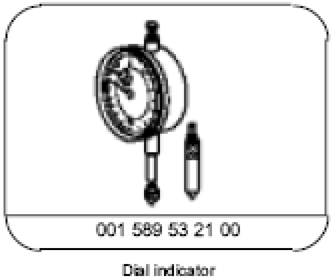


Fig. 107: Identifying Dial Indicator (001 589 53 21 00)